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5. Document Number(s)/Title(s)	6. Proj/Prg/Bldg#	7. Reviewer	8. Organization	9. Location/Phone
DOE/RL 88-32 200-BP-1 Operable Unit RI/FS Work Plan		DOE		

10. Comment disposition agreement	11. CLOSED
Reviewer	Reviewer
Date / Cognizant Engr.	Date / Cognizant Engr.
17. Comment Submittal Approval: Group Manager	

12. Item	13. Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	14. Hold Point	15. Disposition - provide justification if not accepted	16. Status
	Volume 1 GENERAL COMMENTS 1. The general order of the documents does not follow the March Environmental Protection Agency (EPA) guidance completely. (For example: 5.1.14.2, Task 13 Baseline Risk Assessment, is Task 6 in the guidance. 5.1.14.2, Task 14 Data Evaluation, is Task 5 in the guidance.) **HAZWRAP**		1. Reject. In general the documents follow the outline of the EPA March guidance. The task descriptions in the March guidance indicate the types of tasks that are conducted and are very general in some areas. They are not all appropriate for use directly in this work plan. For example, in the guidance Task 1 - Project Planning (Project Scoping), refers to the development of the work plan and supplemental plans. This is not appropriate for including in the work plan itself. Task 3 in the guidance covers all field investigations. We have described the various tasks that comprise the field investigations separately.	

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			This provides a logical means for describing the tasks, cost estimating, scheduling, projecting manpower and resource needs, and for other aspects of project management and control during implementation.	
	2. Sections 2.0 and 3.0 contain so much detail that the reader may be confused before he gets started. Clear introductory statements are needed to clarify the full picture. Are there any buildings? What does Area 600 look like? What is a crib? **HAZWRAP**		2. Accept in part. We do not agree that these sections are confusing. The headers for each subsection accurately describe the contents. However, we have defined the 600 Area in Section 2.1.5. It is not necessary to document the absence of buildings in the operable unit. We described what is in the operable unit, not what is not in it. The cribs are adequately described in Section 2.1.4.1.	
	3. Because the various control plans are constrained to Phase 1, the title of the work plan and supporting control plans should also carry Phase 1. These plans will be modified and expanded over time; therefore, a more accurate document trail could be maintained if each major phase was referenced in the respective titles. **HAZWRAP**		3. Accept. Phase I has been added to the title of the support plans.	
	4. There does not appear to be any consideration of the cultural resources of the Hanford Site as per the Antiquities Act. A survey of these resources should be included in planning of the 200-BP-1 OU RI/FS. **RL**		4. Accept in part. These are addressed as an ARAR in Table 3-4. However, a statement has been added to Section 5.1 indicating a survey of cultural resources will be conducted in the	

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	5. Page xi: List of acronyms, the definition of CERCLA should read: Comprehensive Environmental Response, Compensation and Liability Act, as amended. IT 6. The Plates (2-2 and 2-3) were not legible in the review copy, more care will be necessary in the final copies. IT 7. Consideration is strongly recommended as part of Section 7.0, page 190-193 to add a list of DOE-RL Mandatory Requirements. RL		600 Area. No cultural resources are expected within the operable unit boundary due to the extent of operational activities that have been conducted. 5. Accept. "As amended" will be added to the definition of CERCLA. 6. The diagrams presented in Plates 1 and 2 were to illustrate the general construction of the cribs. These drawings were produced in the early 1950's and originals are available on file in the offices of RL. Care will be taken in reproducing these drawings to make them as legible as possible. 7. It is not clear what is meant by listing DOE "mandatory requirements". Section 7 provides a list of all references that are cited throughout the work plan. These references included items such as site background document, EPA guidance documents, and DOE orders. It should be noted that all work will be conducted and controlled in accordance with DOE requirements and instructions specified for each individual task and as outlined in the implementing project plans (Attachments 1 through 5). No changes are necessary.	

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	8. Page 1, Sec. 1.0, P. 2, last sentence: Add "identification" between "This" and "process". RL		8. Accept. Sentence has been modified as suggested.	
	9. Page 1, Sec. 1.1: Suggest changing WHC to the "remediation contractor". RL		9. Reject. Since Westinghouse Hanford Company (WHC) is current Operations and Engineering Contractor for the Hanford Site and since it is currently envisioned that WHC will conduct the remedial investigation and clean-up of 200-BP-1 Operable Unit such a change would be inappropriate. All work procedures and instructions referred to in the document are specific to WHC.	
	10. Page 1, line 1: The date should be June 24, 1988. RL		10. Accept. Date has been corrected.	
	11. Page 1, Section 1.1: If the "purpose of this plan is only to guide WHC" as stated, then where is the actual work plan that defines the specifics of what is to be done, who will do the: work, and how the work will all be integrated into a final product that meets regulatory requirements? HAZWRAP		11. Accept. Statement has been modified to "The purpose of the work plan is to guide DOE/WHC in the implementation of all RI/FS activities conducted at this operable unit".	
	12. Page 1, Sec. 1.1: The plan is actually a guide to DOE, not WHC. RL		12. Accept. See response 11.	

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	13. Page 2: The map should be corrected in the vicinity of Midway, it should also have the Hanford Site Boundary labeled. RL,IT		13. Accept. Map has been corrected and the Hanford Site boundary has been labeled.	
	14. Page 3, Section 1.2: This section is titled so the reader expects an overview of the remedial investigation/feasibility study (RI/FS) process; however, it is not clear if this is the generic process or the one applicable to this operable unit. The last two paragraphs address 200-BP-1, while the other paragraphs seem to reflect the generic process. The purpose of this section should be confirmed and the overview worded accordingly. HAZWRAP		14. Reject. This section is an overview of the RI/FS process as it applies to this operable unit.	
	15. Page 3, Sec. 1.2, P. 1: After "CERCLA" add ..."through the tri-party agreement." RL		15. Accept. Sentence has been modified as suggested.	
	16. Page 3, Sec 1.2, P. 2, line 1: Change "CERCLA" to "Environmental Restoration". RL		16. Reject. This is a CERCLA document and the statement reflects CERCLA goals.	
	17. Page 3: How was the decision to phase the FS into 3 parts arrived at? With the FS broken into pieces it seems to be extending the schedule much longer than need be. IT		17. The FS is in three parts to clearly describe the different types of activities that are conducted during the FS. However, the schedule (see Figure 6-1) clearly indicates that portions of Phase I and Phase II of the FS are conducted concurrently as described in the EPA guidance. The Phase I	

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			Report has been deleted and combined with Phase II in one report as specified in the "Action Plan".	
	18. Page 4, Fig 1-2: Remove one of the "to"s under the RI Objective. RL		18. Accept. Figure has been modified as suggested.	
	19. Page 4, Fig 1-2: Based on Chapter 2 of the March 1988 guidance, this figure should be modified to include two additional items under the heading of SCOPING, namely: 1) Development of a site management strategy, and 2) Likely response scenarios. In addition, contaminant and location specific ARARs should be added under the "PHASE I" heading of the RI portion of the figure. NUS		19. Accept. This figure is a modification of a figure in the EPA guidance and it was not intended to be an exact duplicate. However, it will be modified to include the items noted.	
	20. Page 4: Scoping Box needs an additional bullet "Develop Site Management Strategy. IT		20. Accept. See response 19.	
	21. Page 4, Phase I: Operable Unit characterization needs two additional bullets, "Conduct Field Investigation" and "Define Remedial Action Goals." IT		21. Accept. See response 19. However, it should be "Refine Remedial Action Goals" not "Define".	
	22. Page 4: "To" box needs to be reordered in that during the ROD process, Remedy Selection comes before the preparation and approval of the ROD. Thus, selection of Remedy should be the first bullet. IT		22. Accept. See response 19.	

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	23. Page 5, Section 1.3, P. 1: The second sentence should be changed to indicate that the work plan "will be" modified rather than "may be" modified. There is no doubt that the plan will be modified as the project progresses through the various phases. **HAZWRAP**		23. Reject. Sentence is acceptable as is.	
	24. Page 5, Sec. 1.3, P. 2: The development of a supplemental programmatic EIS is discussed in relation to satisfying the NEPA requirements for remedial activities resulting from this Work Plan. A brief discussion on the schedule and status of this NEPA document would help the reader understand the temporal relationship between the RI/FS and the supplemental programmatic EIS. **NUS,RL**		24. Accept. Additional discussion has been added to this section describing the time frames for completing the associated NEPA activities.	
	25. Page 5, Section 1.3, P. 1: The project organization does not appear to be sufficiently detailed to show the working-level project team. **HAZWRAP**		25. It is unclear what this comment is referring to. Section 1.3 describes the organization of the RI/FS work plan not the project organization. The project organization is described in the Project Management Plan - Attachment 5.	
	26. Page 5, Section 1.3: An Environmental Impact Statement (EIS) is mentioned. How will the EIS fit into the system? Where is the EIS schedule (not in Sect. 6)? Who is developing it? **HAZWRAP**		26. Accept. Additional discussion has been incorporated into this section describing the CERCLA/NEPA relationships. Time frames for accomplishing these activities and responsible organizations have also been identified.	
	27. Page 6, Section 1.3, first sentence: "Manage and conduct" should be changed to "control," and "Project" should be added at the end. This change will signify that		27. Accept in part. These plans also describe how the project will be managed and conducted. However,	

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	the key to project success is maintaining control of the various project functional elements. These plans reflect "what" will be controlled and "how" that control will be accomplished (procedures, policies, etc.). **HAZWRAP**		we have added control.	
	28. Page 6, Section 1.3, P. 2: It is recommended that everything be deleted after the first sentence. The amount of detail is not needed for this section. In fact, the discussion is not complete because only the sampling an,d analysis, quality assurance (QA, and community relations plans are addressed. **HAZWRAP**		28. Accept. Section 1.3 has been modified as suggested.	
	29. Page 7, Section 2.1.2: How many of the 149 S-S tanks are in 200-BP-1? The second paragraph addresses a singular tank, but Sect. 2.1.3 addresses multiple tanks. **HAZWRAP**		29. Reject. None of the single shell tanks are in 200-BP-1. The tanks noted are not in the operable unit, but in the adjacent 241 BY-Tank Farm. The first sentence of paragraph two in Section 2.1.2 indicates there are nine cribs and three unplanned releases in the operable unit. We have rewritten the paragraph to clarify this. The second sentence of the comment is unclear. Where is a singular tank mentioned?	
	30. Page 7, Section 2.1.1: Fig. 2-2 is busy enough to be confusing. Placing the numbers outside the confined area might help. Further study within the documents reveals that wells were "E"-identified items. Plat 3-1 shows wells E-22 and E-23. Are these not included for a reason? The details of cribs (south of the fence) and wells in Fig. 2.2 of the area outside 200-BP-1 seem to be confusing. Further study inside the document revealed		30. Accept in part. Figure 2-2 has been modified to be less confusing. A legend has been added. Missing wells have been included.	

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	that the "flush tank" is the "241-BY Tank" or "Tank Farm." (Once again they are identified as multiple tanks in Sect. 2.1.3.). Is the rectangle surrounding the six cribs a concrete pad or something else? **HAZWRAP**			
	31. Section 2.1.1: Table 2-1 should include the tanks. **HAZWRAP**		31. Reject. There are no tanks in the operable unit.	
	32. Page 7, Section 2.1.1, P. 2, last two sentences: These last two sentences refer to two different survey systems. The first is the Cadastral Land System, and the second refers to a survey system that is similar to the Universal Transverse Mercator system. The two systems are not directly compatible because they use different baselines for their origins. **HAZWRAP**		32. Acknowledge. The site location was described by both geodetic survey systems for convenience to the readers for reference to the system in which they are familiar.	
	33. Page 7, Sec. 2.1.2, P. 2: A brief description of a "crib" would be helpful to a majority of readers. **IT**		33. Reject. A description of the cribs is provided in Section 2.1.4.1 Cribs.	
	34. Page 7, Sec 2.1.2, P. 2 and Fig.2-2: The 241-BY tank farm is called out on page 7 and should be shown and labeled on the figure. **RL**		34. Accept. The 241-BY Tank Farm has been labeled on Fig. 2-2.	
	35. Page 9: Map needs a legend describing solid circles, cross hatched circles, open circles and solid lines. **IT,RL,NUS**		35. Accept. A legend has been added to Fig. 2-2.	
	36. Page 9: This figure and Plate 2-1 are not consistent, i.e., UN vs UPR. **RL**		36. Accept. Plate 2-1 has been corrected to change UPR to UN in the 200-BP-1 Operable Unit.	

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	37. Page 11, Sec. 2.1.3: The numbering system associated with tank farms, crib units and so on is very specific at Hanford. It would be better to include the entire alphanumeric name for specific waste disposal units. These alphanumeric codes should be included in a glossary. **IT**		37. Reject. The Hanford numbering system is specific to the various facilities and is in common usage at the site. There is no need to add confusion by including the entire alphanumeric name.	
	38. Page 11, Section 2.1.3: The IT tanks are addressed, but they are not shown anywhere. **HAZWRAP**		38. Reject. Paragraph three of Section 2.1.3 explains that the ITS #1 and #2 units are located in the 241 BY-Tank Farm. This tank farm is not in the 200-BP-1 operable unit.	
	39. Page 11, Section 2.1.4: Tanks and lines do not appear to be included as part of the facilities. **HAZWRAP**		39. Reject. The only tank in the operable unit is the "flush tank" it is included on Figure 2-2. Pipelines are also included on this figure and on Plate 2-2, and are included in the discussion in Section 2.1.4.1. The section has been clarified to include mention of the pipeline crossing the operable unit from the 200 West Area and the flush tank.	
	40. Section 2.1.4: Is "wetting front" a term that everyone understands? **HAZWRAP**		40. "Wetting front" is a term used and understood by qualified hydrogeologists.	
	41. Page 11, Sec. 2.1.4.1, P. 2: This paragraph states that the accuracy of estimated quantities ... is unknown. The estimated quantities are not listed, where are they? **IT**		41. Accept. A sentence has been added referring to Appendix A for estimated quantities.	

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	42. Page 12, Sec 2.1.4.2: Figure 2.2 shows specific locations for the unplanned releases, yet, this section indicates that the location of 2 of the 3 are unknown, and further states that UN 200-E-9 occurred in the 241BY Tank Farm (wherever that is) and not in the 200-BP-1 Operable Unit. What is the correct placement? If the releases are not in the OU, don't discuss them at all. IT,RL		42. Accept in part. A legend has been added to Figure 2-2 to indicate the locations of unplanned releases are approximate. The unplanned releases are discussed because they are included on the NPL listing and in the operable units report. It is possible that although these releases occurred in the 241-BY Tank Farm, they may have flowed into the operable unit. Sec. 4.1.4.2 has been modified to indicate this possibility.	
	43. Page 12, P. 1: The term "infiltration pathway" is used here and is commonly used at Hanford to describe subsurface water movement. "Infiltration" applies to the air-soil interface phenomenon and the term "percolation" is more appropriate in this usage. RL		43. Reject. The terms "infiltrate" and "percolate" are virtually synonymous in the context used. Since the term "infiltration" is in common use at Hanford, it is appropriate to continue to use it.	
	44. Page 12, P. 2: Clastic dikes are known to occur in the Hanford Formation, but it is doubtful if geologists would consider them "common". RL		44. Accept. Sentence has been clarified to indicate calcium carbonate cemented horizons and thin beds of silt are common in the Hanford Formation, and clastic dikes are known to occur.	
	45. Page 12, Section 2.1.5: The 600 Area is not defined on Plate 2-1 as implied. It does not appear to be shown anywhere. HAZWRAP		45. Reject. Plate 2-1 shows the operable units of the 200 East Area. The 600 Area refers to all areas not within other designated areas (i.e. 100, 200, 300, 400, and 1100 Areas) at Hanford. This is	

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			common knowledge to those familiar with Hanford. However, this sentence referring to the 600 Area has been added to Section 2.1.5.	
	46. Page 13, Physical Setting: This section is totally devoid of any discussions of area Soils, Geology does not necessarily constitute soils. IT		46. Reject. As indicated in this section the "Palouse" soils and surface loess deposits found elsewhere in the Separations Area are not present in the operable unit.	
	47. Page 13, Section 2.2.2, first sentence: The use of the terms "geologic stratigraphy" together is redundant. It is suggested that "geologic" be eliminated. HAZWRAP		47. Accept. "Geologic" has been deleted from this sentence.	
	48. Page 16, Figure 2-5: Is there sufficient geologic data to construct a fence diagram? The figure shows many cross sections but subsequent figures only display 2, are the remainder of limited use? RL,IT		48. Fence diagrams are not necessary for the development of the work plan. They will be provided in the RI Report if needed. Yes, the other cross sections are of limited use. Only those nearest the operable unit were included.	
	49. Pages 19-22: Suggest relabeling of cross sections to avoid confusion with cross sections identified on Fig 2-5. Avoid repeating A-A', B-B', C-C'. Also double check to verify all boring identifiers are the same on Fig 2-8 and the cross sections. For instance either put 699(?) and 299(?) identifier on Fig 2-8 or take them off of the cross sections. IT		49. Reject. These figures were obtained from the referenced reports. No change needed.	

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	50. Page 22 and 26: The units of the isopleths used in these figures should be indicated in the legend. NUS		50. Partially accept. Figure 2-11 on Page 22 does contain units. However a legend has been added to Figure 2-12 on page 26 to indicate the contours represent elevation in meters above mean sea level.	
	51. Page 24, Figure 2-12: What is the datum for the contours? RL		51. Accept. See response 50.	
	52. Page 26, Figure 2-13: What are the isopach units (feet I assume)? RL		52. Accept. A legend has been added to indicate the isopach units are meters.	
	53. Page 27, Sec. 2.2.3.1.1 Recharge: From the description, the reader has little concept of the relative importance of natural recharge vs. artificial recharge.The artificial recharge overwhelms the natural recharge in the study area and the changes in locations and amounts of pumping are having significant effects on the hydrologic system. Please expand this section. RL		53. Accept. Artificial recharge does have a pronounced influence on the hydrology of the area and will be given more emphasis in Sec. 2.2.3.1.1.	
	54. Page 27: Artificial recharge can also occur from old, improperly abandoned wells which may have existed during the pre-Hanford times. Especially if the area was used for agricultural and grazing purposes (as indicated on Page 44). Has any historic search been conducted to ascertain the existence of any pre-Hanford site wells? Artificial recharge is also potentially possible from any well on site. Older monitor wells may not be constructed to standards required today. Any well could potentially act as a conduit if construction problems or grout failure		54. Acknowledge. Wells that have existed pre- Hanford times and do not exist today are not revellent for this study. Wells currently existing in the study area will be evaluated regarding their construction and suitability (see Task 7 in Section 5).	

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	occur(red)). IT 55. Page 28, Figure 2-14: Although popular with the lay reader, the term "mean sea level (MSL)" for an elevation datum is technically incorrect. Most USGS topographic maps now show the referenced datum as the "National Geodetic Vertical Datum (NGVD) of 1929. NUS 56. Page 29, P. 1: "Groundwater mounds are evident ..... to a lesser degree below Gable Mountain Pond when active" may be taken by the reader as the pond is still active. Suggest putting the statement in the past tense. The same paragraph refers to a "stagnation zone" formed at the study area because of waste disposal practices. Changes in pond location and quantities have resulted in enhanced northward gradients as seen when comparing figures 2-14 and 2-15. Figure 2-14 has significantly more well data control in the 200-BP-1 area than does Figure 2-15. Could the differences in well data control account for any or all of the potentiometric surface interpretations? RL 57. Page 29, P. 1: It is indicated that groundwater flow from the unconfined aquifer beneath the Hanford Site is almost exclusively toward the Columbia River. Detailed geological sections across the river, showing River stage and heads in the unconfined and confined aquifers on both sides of the river could be used to support this important conclusion. Also, it is unclear if the only two alternatives to discharge to the Columbia River are downward leakage from beneath B-Pond and evaporation, or if there are additional discharge points that are not		55. Acknowledged. Figure 2-14 was obtained from the referenced report. No change needed. 56. P.1. Accept. Statement has been changed to the past tense. The enhanced northward gradients were from a referenced document (Westinghouse, 1988a). The stagnation zone, as used in the text, represents an area were zero or in general low relative hydraulic gradients existed at the approximate center of the groundwater mounds created by infiltration from the three ponds. 57. Reject. The information in sentence two of the comment is not required for inclusion in the work plan. It will be included in the RI report if needed. No discharge points other than those described in this section are known.	

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	described. **NUS** 58. Page 29, Sec 2.2.3.2.3: discusses the discharge of the confined aquifer. The text implies that there are two major discharge points for this aquifer, the columbia River and the unconfined aquifer. However, the evidence for concluding that this aquifer discharges to the river near Richland and to the unconfined aquifer in the northern portion of the site was not provided in the work plan. It is noted, not in the work plan, that a recent Westinghouse report (WHC-EP-0037, "Data Compilation: Iodine-129 in Hanford Groundwater," August, 1987) seems to suggest that detailed studies are required to delineate groundwater transport pathways within the confined aquifer. Figure 2-16, which shows no data points across the Yakima or Columbia Rivers, adds support for the need of additional groundwater flow information for the confined aquifer. **NUS** 59. Pages 30-31: The contour intervals on these two figures should be the same to permit ready comparison over time. **IT,NUS,RL** 60. Page 31, Figure 2-16: Add West Lake elevation. The Rattlesnake Ridge potentiometric surface contour of 410 ft. cuts across the area labeled as, basalt outcrop above water table. Does the Rattlesnake Ridge Fm. occur at that elevation at that location? A geologic cross-section from 53-50 to 42-40, including potentiometric surfaces, might be helpful if enough information is available to construct one. **RL**		58. Reject. The statements made were from referenced documents. A detailed study of discharge from the Rattlesnake Ridge aquifer is not necessary during the RI/FS for the 200-BP-1 unless this aquifer is being or could become significantly impacted from 200-BP-1. The RI/FS is focusing on understanding potential mechanisms for impacts to this confined aquifer from 200-BP-1. 59. Reject. The figures indicated were obtained from the sources referenced. 60. Reject. Figure 2-17 was from a referenced document (Serkowski et al., 1988). Water levels were not provided for the time period. Acknowledged. A geologic evaluation will be conducted prior to installing wells during the RI (see Task 6 in Section 5). Geologic cross-sections will be	

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			established to best illustrate the area hydrogeology during the RI.	
	61. Page 32, Table 2-2: Hydraulic data of wells in the area would also be useful in addition to this table. RL		61. Acknowledged. Hydraulic data of individual wells presented in referenced documents (Graham et al., 1981 and Graham et al., 1984) were available and reviewed. The tested wells in these documents were not located in the study area. A task has been included in the RI to identify, obtain and review additional information if available.	
	62. Page 34, P. 1: Extensive nitrate data for the Pasco Basin should be available through the Tacoma USGS office. They are presently performing a study of the basin in the areas north of Pasco and east of the Columbia River. RL		62. Acknowledged. This information will be obtained during the RI if needed.	
	63. Page 34, Sec. 2.2.3.2, Confined Aquifer: This section should talk of confined aquifers, not confined aquifer, as these units are not hydraulically connected to any significant degree as evidenced by chemical differences. The public may be most interested in a discussion of those zones from which water is pumped from east of the Columbia River. What information do we have that would be appropriate for this section? RL		63. P.1. Accept. Title of Section 2.2.3.2 has been changed to "Confined Aquifers". P.2. Acknowledged. The need for this information will be assessed and provided in the RI Report if the confined aquifer is found to be contaminated from this operable unit.	
	64. Page 34, Section 2.2.3.2.2, last sentence: Modify this sentence to indicate that the groundwater flow direction that is indicated in this paragraph is of the		64. Reject. The Rattlesnake Ridge Aquifer is identified as the uppermost confined aquifer in the	

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	"confined" Rattlesnake Ridge Aquifer and not the water table aquifer. Although this information is given under the heading of "Confined Aquifers," Sect. 2.2.3.2, there is so much information on aquifer flow direction:s in this section, it would help to remind the reader that this is a confined flow direction. HAZWRAP		second sentence of this section.	
	65. Pages 34-36, Sec. 2.2.3.2, Confined Aquifer: The discussions in this section seem to be based on data and conclusions drawn from Graham,1981 and Gephart et al., 1979. There was a significant amount of data obtained for the confined aquifers, including the Rattlesnake Ridge and Saddle Mtns, by BWIP. This data seems to have been ignored. RL		65. Acknowledged. The referenced documents were not the only documents reviewed, but contained information most relevant to the 200-BP-1 study area. Activities have been identified during the RI/FS to identify, obtain and review additional relevant information if available.	
	66. In comparing nitrate, tritium, total beta and cyanide plumes as shown on Figures 3-2 through 3-5, all the plumes show a northward trend. However, the tritium plume exhibits a strong southeast component and a very severe break in the northward component where the 5,000 pCi/L contour stops. Is this a result of the choice of the minimum contour shown on the maps, differences in contaminant disposal histories, or can hydraulic and/or contaminant transport differences be inferred? RL		66. Acknowledged. Figure 3-3 of the tritium plumes was obtained from the referenced report. There are multiple sources and plumes of tritium in the Separations Area. Plumes in the southeast portion of the 200 East Area do move in a south east direction indicating a different hydraulic gradient in that area. The referenced report does not include contours of concentrations less than 5,000 pCi/L.	

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	67. Page 44, Sec. 2.2.6.3: The first sentence should be rewritten, wetlands are not the only sensitive environment. **RL**		67. Accept. The first sentence has been rewritten to indicate no wetlands or other sensitive environments exist near the operable unit.	
	68. Page 44, Sec. 2.2.7.2: Does not define how the 200 Area is "further restricted." **IT**		68. Reject. The statement was obtained from the referenced DOE document.	
	69. Page 44, Sec. 2.2.7.2: The term "cultivated agriculture" is redundant. **RL**		69. Accept. The "cultivated" has been deleted from this sentence.	
	70. Page 45, Sec. 2.2.7.3.2: The text is confusing with respect to downgradient and upgradient. Also, it is unclear if there are any wells serving as sources of potable water downgradient of the OU. Based on Figure 2-17, much of the confined aquifer is downgradient of the OU. **NUS**		70. Reject. First sentence of comment is unclear. The first sentence of Sec. 2.2.7.3.2 clearly states groundwater downgradient of the operable unit is not used for drinking. Last sentence of comment is unclear. The confined aquifer exists throughout the region.	
	71. Page 45, 2nd to last sentence: should probably state "...13 kilometers (8 miles) to the southeast of ..." **NUS**		71. Accept. Sentence has been corrected.	
	72. Page 46, Sec. 3.1.1.1: Is there any documentation of releases from the 241 BY Tank Farm? **RL**		72. Reject. The 241-BY Tank Farm is located within another operable unit and not the subject of this work plan. However, some of the investigations included in the RI for 200-BP-1 are intended to gather information on groundwater	

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			contamination from other sources upgradient including the 241-BY Tank Farm.	
	73. Page 50: It is confusing to have one acronym for two things (ACL)? IT		73. Accept. ACL acronym has been deleted for Administrative Control Limits.	
	74. Page 50, Sec. 3.1.3: The discussion on monitoring wells covers 33 wells, however, Table 3-3 presents the data for 41 wells. Why don't these values agree? Some listed wells are not shown on the appropriate figures. IT,NUS		74. Acknowledged. Table 3-3 provides a list of wells in the vicinity of the operable unit. The text describes subsets of these wells that provide useful information for the operable unit.	
	75. Page 52, Section 3.1.3, P. 3, fourth sentence: Additional language should be added to emphasize that most of the numerous compounds analyzed for were below detection limits and were therefore not included in the list of major analytes. The reader should be given a sense of the extent of chemical analysis at the site and the criteria used to select the major analytes. HAZWRAP		75. Accept. Additional language has been added as suggested.	
	76. Page 53, Fig. 3-1: The symbol for cluster wells is essentially the same as that for confined aquifer wells and it is difficult to differentiate between the two. IT		76. Reject. Cluster wells are indicated on this figure by the letters in parentheses following the well number. The symbol with the dot within the triangle indicates a cluster well monitoring both the unconfined aquifer and the Rattlesnake Ridge Aquifer as indicated on the legend.	

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	77. Pages 54-82: There needs to be consistency among units: mg/L, ppm, ug/L, ppb, need to use a standard unit, either english or metric. RL		77. Accept in part. The text and all new figures prepared for this work plan do consistently use metric units. Figures used from other referenced reports use the units included in the original reports.	
	78. Page 54: Sodium is Na not No. RL		78. Accept. Corrected.	
	79. Page 56, Sec. 3.1.3.2: Tritium concentrations for the unconfined aquifer are shown, Well E-33-24 exhibits among the highest concentrations. Tritium in this well is several times that in neighboring well E33-5, although their Tc-99 concentrations are comparable. The RI should explain such lateral variations if they are important to remedial selection. Additionally, some wells near the OU are identified as containing relatively high concentrations of tritium, with B-Pond being the source via leakage to the confined aquifer. Well E33-12 is some 2 miles distant and the gradient in this area is about 0.0008 (obtained from Figure 2-16). Based on this information, a hydraulic conductivity of 6 ft/day (Table 2-4), and an estimated effective porosity of 0.1, the groundwater velocity from B-Pond to the OU is estimated to be on the order of 15 ft/year. Based on this estimate, it appears that sources other than B-Pond may have contributed the tritium now measured in well E33-12. NUS		79. P.1. Acknowledged. The RI is intended to explain the nature and extent of contamination sufficiently to select a remedial alternative. P.2. Acknowledged. There may be sources of tritium in the confined aquifer affecting well E33-12 in addition to B Pond.	
	80. Page 62, Sec 3.1.3.16, line 4: Editorial, add "well" in front of "50-53". RL		80. Accept. Sentence has been changed as suggested.	

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	81. Page 63, Sec. 3.1.4: The reader should be referred to Sec. 3.1.3, not 3.2.4. NUS		81. Accept. Sentence has been corrected to refer Section 3.1.3.	
	82. Page 65, Section 3.2: The reference cited (EPA, 1988c) is not on the reference list. IT		82. Accept. Reference has been included.	
	83. Section 3.2: Nowhere in this discussion are the impacts of the "Land Ban" restrictions considered. The waiver for Superfund generated waste expires on November 8, 1990. Since the FS isn't predicted to be completed until 1995 this is a very applicable, relevant, and appropriate requirement to start considering during the planning stages. IT		83. Reject. Normally in the scoping process only chemical-specific and location-specific ARARs are discussed. However, we have included some discussion of potential action specific ARARs and include RCRA disposal requirements as a potential action-specific ARAR in Table 3-4. Action specific ARARs will be reviewed in more detail (including the impacts of the land ban) during the evaluation of alternatives in the FS.	
	84. Page 66, Sec. 3.2.1, P. 4: DOE's current position is that DWS do not apply to the groundwater, but can be used for comparison. This stance should be reflected in the narrative. RL		84. Reject. The Tables referred to in P.4 on this page are meant for comparison as is clearly stated. The discussion of DWS as potential ARARS is correct in Section 3.2.2 and in Table 3-4.	
	85. Plate 3-1: The source is PNL not "unknown". RL		85. Accept. The correct source of the drawing has been referenced.	

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	86. Page 66, Sec. 3.2.1, P. 2: If not already performed, the discussion concerning sovereign immunity relative to ARARs should be reviewed to assure consistency with the consent order/compliance agreement being negotiated with the state and EPA. DOE's policy and position has been that the agency will meet substantive requirements of all applicable state laws, not the position that some laws are not applicable due to sovereign immunity. **NUS,RL**		86. Accept. The discussion of ARAR's in the most recent version of the Action Plan (1-11-89) was reviewed. Consistent with the Action Plan the paragraph containing the reference to "sovereign immunity" with regard to applicable State requirements has been deleted.	
	87. Page 74, Section 3.2.1, Table 3-6, Identification of ARARs: If protection of aquatic life in potential surface water receptors is being considered as an environmental factor, the Clean Water Act Ambient Water Quality Criteria for protection of freshwater aquatic life may be relevant and appropriate. Therefore, these water quality criteria (acute/chronic) should be added to Table 3-6 for the listed chemicals. Also, if specific water quality standards exist for waters of the state of Washington (Ch. 173-201 WAC), these should be added to Table 3-6 because they are potentially appropriate requirements. **HAZWRAP**		87. Accept. Table 3-6 has been modified as suggested.	
	88. Page 76, P. 1: The sentence reads: "Ground water affected by the site is not currently used for drinking water at the Hanford site and there is no evidence of off-site consumptions of the ground water affected by the operable unit." Does this mean the affected Aquifers are not being used for potable water off-site or contaminated ground water is not being consumed off-site?? The sentence needs to be clarified. The intent of the sentence should be clear. Regardless, if the aquifers		88. P.1 and P.2. Accept. The statement is unclear and will be modified to state that there is no evidence of off-site (Hanford) groundwater being affected by the operable unit. 88. P.3. Reject. The aquifers off-site (off the Hanford Site) are not relevant for determining ARARs if they are not currently and have no potential for becoming	

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	are (88 cont.) potable off-site, even if it is not currently used, the MCLs would be relevant and appropriate because they would be a potential water supply (Class IIb). The non-existent (EPA, 1988c) reference is cited again. IT		contaminated from the operable unit. 88. P.4. Accept. Reference has been included.	
	89. Page 80, Sec 3.3.2.2, 1st Sentence: Please rewrite as it does not read well. RL		89. Accept. Sentence will be revised.	
	90. Page 81, P. 2, 1st sentence: What well is being referenced here? RL		90. Reject. This information is provided in Section 3.1.3.	
	91. Page 81, P. 4, line 8: Is WHO really WHC? RL		91. No. As indicated in the reference cited, WHO is the World Health Organization.	
	92. Page 82, Sec 3.3.3: This section indicates that site control will remain in effect for the "foreseeable future". As site control is essential for limiting risks, the institutional control period should be defined in years. As an objective of this section is to assess potential risks, threats to public health and the environment should be evaluated during two periods, namely during the period of institutional control and the period following that control. Careful consideration should be given to the land-use scenarios evaluated for the post-institutional control period. Thus, Fig. 3-6 may have to be modified to reflect conditions during this latter period. In addition, groundwater gradients will have to be estimated when groundwater mounding and leakage to the		92. Reject. The objective of Section 3.3.3 is to discuss the potential for any imminent and substantial threat to public health and the environment. The RI/FS will evaluate the risk during the period following institutional control. It is not possible nor appropriate to conduct that evaluation in the discussion of existing conditions covered in the work plan. Figure 3-6 represents our current conceptual exposure pathway model for the operable	

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	confined aquifer are modified by removal of cribs and ponds from service. **NUS**		unit. The model will obviously be modified if information gathered during the RI/FS changes our understanding of the site.	
	93. Page 84, Sec. 3.3.3.5: A heading appears to have been omitted after the first paragraph, as the discussion of Table 3-9 includes doses from sources other than air. **NUS**		93. Accept. The heading for Section 3.3.3.6 was in the wrong location and has been corrected.	
	94. Pages 84-86: Radiation exposure data of the maximum individual dose are presented in mrem (millirem). On page 87, comparable data are presented on Table 3-10 as person-rem. Based on the accompanying figure, it appears that the units for Table 3-10 are millirem. **NUS**		94. Accept. Table 3-10 has been corrected.	
	95. Page 86: The conclusion associating the calculated dose with N-reactor and PUREX Plant should be referenced. **NUS**		95. Reject. This is our conclusion.	
	96. Page 86, P. 4, line 2: Editorial "form" should be "from". **RL**		96. Accept. Corrected.	

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	97. Page 93, Table 3-14: The terms "2E-N, 2E-NE, 2E-2 and 2E-3" are confusing and not readily found.		97. Accept. A reference and legend has been added to this Table to indicate what these terms refer to.	
	98. We presume that 3.0E+2 means 3.0 x 10^2. RL		98. Yes, you presume correctly.	
	99. Page 94, Sec 3.3.4.3, P. 1: The "Unity Rule" should be defined in the text. RL		99. Accept. The unity rule is defined in the next to last sentence of this paragraph, however, it will be clarified.	
	100. Page 96, Section 3.3.5: Because Sect. 11 is so long, it would be helpful if this conclusion section was placed in the front of the section rather than at the end. As One reads through this section, one wonders what does all this mean all terms of risk/threat to people and the environment. HAZWRAP		100. Accept. Language has been added to the front of Section 3.3.	
	101. Page 96, Section 3.4: This discussion seems out of place. It is recommended that it be rolled into Sec. 5.5, "Detailed Analysis of Alternatives" or identified as a separate major Sect. 4.0 following Sect. 3.0. HAZWRAP		101. Reject. Section 3.4 is appropriate to include in the initial evaluation (Section 3.0), and is consistent with the suggested format for an RI/FS workplan in the March 1988 EPA guidance (see Table 2-3 of the guidance).	
	102. Page 97, Section 3.4.1, first sentence: If in the preliminary risk assessment portion of the Work Plan it specifies that sulfates, phosphates, and sodium are not going to be considered in the final risk assessment, why are they included as a preliminary remedial action		102. Reject. Although sulfates, phosphates, and sodium are not important for the risk assessment, they may be important water quality parameters for selection and design	

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	objective? In addition, selenium contamination lies beyond the confines of the site and is reported in a previous section of the text to be the result of another source. Why is it included in this investigation unless it has been reported as a contaminant on-site? HAZWRAP		of groundwater treatment systems. The source of selenium is not known at this time, but is suspected as being from a source other than the 200-BP-1 Operable Unit. This will be clarified during the RI.	
	103. Page 98, Table 3-16: The containment alternatives may be considered for comparison purposes only, as containment actions do not meet the intent of SARA. IT		103. Reject. Containment alternatives reduce the mobility of contaminants which is one of the elements that SARA requires to be considered (See Sec. 121.(b) Cleanup Standards). The March 1988 EPA guidance also includes containment options throughout the discussion of remedial alternatives.	
	104. Page 99: "Containment Actions" for air, not all chemical constituents can be volatilized--rewrite. RL		104. Accept. Volatilization has been deleted from this section.	
	105. Page 100 Table 3-17 Soil Under landfill, the repercussions of the Land Ban need to be considered. Incineration is not listed as a technology. IT		105. Reject. Repercussions of the land ban do not need to be included in this table. Action-specific ARARs including the land ban will be evaluated during the FS. Incineration is not an appropriate technology for the radionuclides or other waste constituents in this operable unit.	

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	106. Page 101, Chemical precipitation: FaSO4 should be FeSO4 **NUS**		106. Accept. Corrected.	
	107. Page 101 Table 3-17 Ground Water Bioreclamation is not listed as a technology. **IT**		107. Reject. Ground water contaminants associated with this operable unit are not amenable to treatment by bioreclamation.	
	108. Page 103 Table 3-18: The Land Ban restrictions need to be considered as well as the new proposed revision to the NCP, 40 CFR part 300, which is proposed to be amended by adding a new Section 300.440. This new section deals with offsite disposal of CERCLA site waste (response and remedial action). **IT**		108. Reject. See response 105.	
	109. Section 4.0, general comment: Section 4.0 is entitled Work Plan Rationale. In addition to defining the location of samples and the rationale behind the sampling effort, you should specify the sequence or approach that the field investigation is going to take, which is a part of the "rationale" for the field investigation. Case in point: From Sect. 4.0 to Sect. 4.2.3.2 you specify the various areas of the investigation and how you are going to sample within these areas. Section 4.2.3.2 specifies that the actual locations of the wells are unknown downgradient of Well 50-53 but that they will be determined by a seismic refraction survey. This is the first place in the document where a seismic refraction survey is mentioned. In (109 cont.) reality, will not the seismic refraction survey be accomplished as one of the first field tasks and will not the results of one aspect of the field effort feed the next phase of the fieldwork?		109. Partially Accept. Additional language has been included in Section 4.2 to reflect the concerns expressed by this comment. The overall organization of Section 4 has not been changed. Section 4.1 has been arranged to discuss data needs by media. Section 4.2 has been arranged in parallel to identify how the data needed will be obtained. The schedule for implementation of the RI has been arranged in a logical sequenced approach.	

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	If true, then the general approach you should take with a discussion within this section should be to arrange the section to show a logical, integrated, sequenced field approach. **HAZWRAP**			
	110. Page 105, Section 4: The discussion on Data Quality Objectives is incomplete. The discussion of the analytical levels is a good start, but it only implicitly addresses precision and accuracy. Also involved are representativeness, completeness, and comparability. **HAZWRAP**		110. Accept. Discussion of representativeness, completeness, and comparability of the data has been included in Section 4.1.	
	111. Page 106, Table 4-1: Level I - Field Screening should be included for all site characterizations as meters/survey instruments will be used for both data needs and health assessments (worker HASP). Level I should be included for source and groundwater media. **IT**		111. Accept. Level 1 has been added to Table 4-1.	
	112. Page 106, Section 4.1, Table 4-1: In general, DQO Level IV data are not needed for site characterization or for evaluation of alternatives. At best, this information can be DQO Level II or III. The only time DQO Level IV data are needed is for the final Risk Assessment. **HAZWRAP**		112. Acknowledged. As a general statement this is true. However, much of the information gathered for site characterization in the RI will also be used for the risk assessment. It would not be cost effective or efficient to resample to obtain information for the risk assessment.	

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	113. Page 106, Site Characterization: The analytical levels listed should be consistent with the text on page 105. **NUS**		113. Comment is unclear. Specific areas where the table and text are inconsistent have not been indicated.	
	114. Under source, there is one too many "III IV" under the Appropriate Analytical Levels column. **HAZWRAP**		114. Accept. Corrected.	
	115. Under "hydrogeology," within the Data Use column, groundwater and velocity seem to be out of position, that is, they belong in "data need" column. **HAZWRAP**		115. Accept. Corrected.	
	116. TCL list parameters should be included in the groundwater and vadose zone area for chemicals to be analyzed. **HAZWRAP**		116. Reject. TCL list parameters have been analyzed in the groundwater. Results of these analyses were evaluated in the selection of the parameters of interest in the operable unit. Any additional TCL parameters identified in the source characterization will be added to the vadose zone analyses as indicated on Table 4-1.	
	117. Sulfates should be excluded as analytes of concern if they are not going to be used as a part of the risk assessment. **HAZWRAP**		117. Reject. See response 102.	
	118. Page 115, Section 4.1.2.1, Surface and Near Surface		118. Reject. As indicated in	

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	Soil: Sampling and analysis of surface and near surface soils outside the operable unit have not been included in the work plan. As stated in Sect. 3.3.3.1, Surface Runoff, contaminated surface runoff may contaminate adjacent surface soils. While contamination of groundwater from surface water is considered improbable, soil sampling and analysis specifically in the area around well 50-53 may prove useful in explaining the high concentrations of constituents in the groundwater at well 50-53. **HAZWRAP**		Section 3.1.2, surface soils are routinely monitored at several locations near the perimeter of the operable unit. Results of this monitoring indicate concentrations of radionuclides are near background levels. It is highly unlikely that surface soil contamination around well 50-53 would explain the high concentrations of constituents in the groundwater. Major disposal activities would be required and none are known to have occurred in this area.	
	119. Page 115, Section 4.1.2.2, P. 2: Lateral spreading of contaminants as a result of perched conditions in the vadose zone may be valid, but it sounds like it could be an extremely expensive and time consuming field task. In light of this type of condition, it is best to keep in mind that the potential remediation of any contaminant in the vadose zone deeper that 20 ft from the surface rests on a very few possible alternatives. And if perched conditions do exist, how continuous are they and does this need to be a main focus for the field effort? For example, if you are talking about perched conditions that may only extend for 10 to 20 ft, preparing plans for this definition seems inappropriate. If the perched conditions extend 100 ft and this zone is within 20 ft of the surface, then additional definition may be warranted. But at depths greater than 20 ft, horizontal definition still seems inappropriate based on the possible remedial alternatives that could apply, the potential cost of such a field task, and the use of the data at the conclusion of the task.		119. Reject. Section 4.1 identifies data gaps relating to site characterization, risk assessment or remedial alternative evaluation. In Section 5. a strategy for obtaining the necessary data was provided. Lateral spreading of contaminants in the vadose zone would not be defined until Phase II - RI if necessary. Prior to Phase II - RI beginning, Phase I - RI which includes the baseline risk assessment, and Phases I and II -FS will have been completed. The potential for or the existence of lateral migration of contaminants in the vadose zone will have been identified. The risks associated with the presence of contaminants	

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	HAZWRAP		in the vadose zone will have been quantified and potential remedial alternatives (including new and emerging technologies) will have been identified and screened. Data needs will be assessed prior to implementation of Phases II - RI and the need and usefulness of further vadose zone investigations will be evaluated from a more defensible position.	
	120. Page 115, Section 4.1.2.2, P. 3, last sentence: DQO Level V is special analytical service. DQO Level V analysis is generally required under two conditions: (1) there may be an ARAR that requires an unusually low detection limit for a particular analyte, compound, or matrix and (2) there may be an analyte that is not part of the TCL list, for example, nitrates. All of these conditions are usually known ahead of time during the work plan formulation stage, and there is rarely a time where a DQO level will be specified in the field or as a result of some other field activity. Therefore, it is not necessary to preface this condition in the work plan. In the field if this situation were to exist, it would fall under the "Field Change Request" heading. HAZWRAP		120. Reject. The conditions stated in the comment for Level V analysis are correct. P. 3 of Section 4.1.2.2 indicates that Level V analysis will be conducted if required (based on the conditions indicated in the comment), as a result of the source characterization. Sentence 3 of the comment is wrong. Results of other field activities often identify compounds where Level V analysis may be required (i.e. to achieve adequate detection limits).	
	121. Pages 116-117, Sec. 4.1.3, Groundwater: This section inadequately addresses the need for site-specific geologic and hydraulic information required to characterize the site. (Found later in 4.1.7.2; 4.1.3 should cross-reference 4.1.7.2.). RL,IT		121. Accept. A cross reference to Section 4.1.7.2 has been included in Section 4.1.3.	

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	122. Page 117 Section 4.1.6 Biota: What about deer? Aren't they a potential receptor and link to humans via the food chain? IT		122. Reject. Deer are not known to frequent the operable unit. The 200 East Area is fenced and the operable unit contains no forage or water to attract them. However, if deer droppings are encountered during Task 9 - Biota Evaluation, they will obviously be sampled.	
	123. Page 118, Section 4.1.7.1, P. 3, last sentence: It is suggested that total organic carbon and cation exchange capacity be included as possible soil parameters. HAZWRAP		123. Reject. The statement "sorptive capacity of the soil" is adequate in this sentence to refer to all sorptive properties of the soil. Total organic carbon is important where organic contaminants are a concern. No organic chemicals have been identified associated with this operable unit. However, we are proposing to conduct TOC analysis of the aquifer matrix as indicated in Task 6 - Installation of Monitoring Wells. Cation exchange capacity is an important parameter in clay soils which are not common at the site. Sorption tests have been proposed to obtain information on the sorptive capacity of the soil.	

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	124. Page 118, Section 4.1.7.1, P. 2, last sentence: Any physical or chemical parameter determined in the laboratory from a quasidisturbed sample from the field ,could not be considered to be DQO Level IV data. Data Quality Objectives not only apply to the analytical methodology, detection limit, and degree of validation but also to sampling methodology and the end use of the data. Leach test data could not be construed to be DQO Level IV, but they could be construed as Level III, perhaps. **HAZWRAP**		124. Accept. Reference to Analytical Level IV will be removed from this sentence.	
	125. Page 118, Sec. 4.1.7.2, next to last sentence: More information is need to support this statement. **RL**		125. Accept. The sentence in question will be removed.	
	126. Page 119, Section 4.2: There is some indication as to how one of the two or three analytical levels presented in Table 4-1 will be selected before performance of the analysis. The rationale for selection should be given for each task. **HAZWRAP**		126. Accept. The rationale for selection of analytical levels has been identified for each task.	
	127. Page 119, Section 4.2.1, P. 1, second to last sentence: This sentence states that "Complete analysis will be conducted on selected composited samples for TCL constituents and radionuclides." How will the compositing be accomplished (NOTE: Subsurface samples for VOAs should not be composited), and how will the samples be selected? The work plan should explain the why, what, where, and when; the Sampling and Analysis Plan should explain how. The mechanism by which the samples will be obtained should be indicated in the work plan. **HAZWRAP,RL**		127. Reject. This level of detail is not appropriate to include in Section 4. The RI task descriptions in Section 5.1 and the Sampling and Analysis plan contain this information.	

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	128. Page 119, Sec. 4.2.1, P. 1: Source Characterization includes the borings that will be temporarily capped, Task 2 of the SAP indicates that the borings will be grouted and Task 4 of the SAP indicates that the borings will be re-entered through existing surface casing with no reference to temporarily capped wells. The method of capping has not been addressed. IT		128. Accept. Language has been clarified and method of capping included in the SAP. Task 2 of the SAP indicates the borings will be temporarily capped and eventually grouted after there use in subsequent activities (i.e. Task 4) has been completed.	
	129. Page 119, Sec 4.2.1, P. 1: When samples are taken down to only 20 to 25 feet, it would be a good idea to also take biological samples for bacteria, molds, etc.. Perhaps a solution to some of the problems is already in place in the form of these organisms. There may be some application of this process to groundwater also. RL		129. Reject. Organic contaminants are not included in the identified parameters of interest for 200-BP-1. Bioremediation is normally associated with organic contamination.	
	130. Page 119, Sec 4.2.1, last P.: This paragraph indicates that analyses for TCL constituents will be performed only if field screening indicates the presence of radionuclides. This assumes that there is a relatively high correspondence between the presence of TCL constituents and the presence of radionuclides. If this is not the case, some TCL constituents may not be detected. NUS		130. Accept. The assumption was that any waste disposed in crib 216-B-61 would have associated radioactivity. A change will be made to include a TCL analysis on at least one sample from this crib immediately below the infiltration gravels.	
	131. Page 120, Section 4.2.2.2, P. 1: If horizontal spreading of contaminants is that important and is a part of the investigation in the vadose zone, then why are we		131. Accept. Near continuous sampling of soils are planned during drilling through the vadose	

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	not performing at least some continuous split spoon samples for stratigraphic determination down to bedrock up front in the field investigation? We do not have to perform many of these, but some, along with the other subtasks specified, will aid in site characterization. The gamma, gamma-gamma, and neutron logs will aid in the perched conditions determination. In fact, if not already known from previous work, the stratigraphy determination subtask should be accomplished first. This information will help "fine tune" all subsequent tasks. **HAZWRAP**		zone (see Task 4, Section 5). Samples will be obtained every 2.5 feet depth interval. The sampler will have a specified length of 2 feet. Since the coarse soils will probably limit sample recovery, the first boring will be continuously sampled for increasing the certainty for identifying potential perching stratum.	
	132. Page 121, Section 4.2.3.2, P. 1, first sentence: It is recommended that the word "additional" be eliminated. Additional is used again to describe the next three wells installed in paragraph 3. **HAZWRAP**		132. Accept. "Additional" has been deleted.	
	133. Page 121, Sec. 4.2.3.2, P. 1, line 3: Editorial, change "53-35 well" to "well 53-35". **RL**		133. Accept. Corrected.	
	134. Page 121, Sec. 4.2.3.2, Unconfined Aquifer: This discussion needs a figure or figures showing existing and proposed wells along with the other pertinent information such as basalt outcrops, potentiometric surface(s) and relevant plumes to assess the adequacy of the proposed wells. Where are the three wells located that are listed here? **RL,NUS**		134. Reject. Figures are included in Section 5.1.6 (See Figures 5-6 and 5-7). Potentiometric surfaces and relevant plumes are discussed in Sections 2 and 3 of the work plan.	
	135. Page 121, 4.2.3.2, Confined Aquifer. This discussion needs a figure or figures showing existing and proposed wells along with the other pertinent information such as basalt outcrops, potentiometric surface(s) and		135. Reject. See response 134.	

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	relevant plumes to assess the adequacy of the proposed wells. RL			
	136. Page 121, Sec. 4.2.3.2, P. 2: The statement is made that the 3 downgradient wells will be located based on initial sampling and the seismic refraction survey. The discussion on Page 124 indicates that the seismic study is not definitely planned. If the survey is not run how will the downgradient wells be located? IT		136. Reject. Downgradient wells will be located with information regarding the surface topography of the uppermost basalt stratum. As indicated in the discussion on Page 124 and in Task 5 of Section 5.1 we will evaluate existing data (particularly seismic studies) that may have previously been conducted in the study area but was not identified or reviewed.	
	137. Page 122, Sec. 4.2.5: What is the rationale for not including Ru-106, Co-60 and Tc-99 in the RI characterization task? NUS		137. Reject. Reference to these radionuclides has been deleted from this section. Since all wastes were disposed subsurface at this operable unit airborne contamination is not expected to be a major exposure pathway. Adequate air monitoring is being conducted currently.	
	138. Page 123, P. 3: The statement "This location is also appropriate as remedial action may be conducted along the front edge of the plume" has not been justified at this point of the RI/FS/ROD process. This concept was used at early remediations of the Rocky Mtn Arsenal, however, 1988 and forward fixes will be in the plume and not down gradient. The sentence should be rewritten to say "This location may be a potential site for the groundwater remediation alternative to be screened during		138. Accept. The statement will be changed to not imply a potential area of remedial action.	

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	the FS process." IT			
	139. Page 124, Sec. 4.2.7.4, last P.: Previous seismic refraction surveys at Hanford have not been terribly successful at defining the top of basalt. Why is it assumed that this technique will work this time? IT		139. Acknowledge. During the review of previous seismic studies conducted (initial activity in Task 5 of Section 5.1), the objectives and success of these studies will be evaluated. Many variables effect the results of a seismic survey including but not limited to equipment, source, number of geophones, spacing of geophones, etc.. The most important objectives of the previous seismic studies may have been to define geologic structure at greater depths. It is anticipated that an adequate seismic velocity contrast exists between the basalt and the overlying soils for application of refraction seismic techniques to meet the objectives of this RI/FS.	
	140. Page 125, Section 5.0: As indicated in Chapter 3 of the 1985 guidance, the tasks described in this chapter should provide assurance that the sum of the existing and new data will form a data base sufficient for satisfying the input requirements for all engineering, statistical, and modeling calculations to be performed, including any computer programs that may be used. NUS		140. Acknowledged. It is the intent of the RI to gather sufficient data for meeting these needs.	

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	141. Page 125, Section 5.1, last paragraph: It is suggested that the paragraph be titled something to the affect of "Prerequisite Requirements." This paragraph seems to address project requirements of an operational nature. It does not seem to fit under Phase 1 Remedial Investigations wherein the 14 tasks are outlined. **HAZWRAP**		141. Reject. Commenter is correct, these are operational requirements that must be conducted prior to conducting field activities, as such it is appropriate to summarize them in the introduction to the Phase I RI.	
	142. Also, the QA plan is applicable to site activities just as the health and safety plan is, therefore, it should be added to the fourth sentence. **HAZWRAP**		142. Accept. QA plan has been added to this sentence.	
	143. Page 125, Section 5.1: The introduction defining how samples are screened is confusing. It would appear that field scanning is needed first. What is the system to track samples, etc.? (Should the management appendix be referenced here?) Are the specific laboratories on-site and off-site identified? What assurance exists that the specific procedures of this plan are followed? (How is it guaranteed?) **HAZWRAP**		143. Accept. The paragraph discussing the radiological screening of the samples has been revised. The system used to tracks samples is contained in a WHC procedure "Chain of Custody" EII 5.1 which is referenced in the Sampling and Analysis Plan. Reference to this procedure in this section of the work plan is not appropriate since the details of sample collection, handling and transportation are contained in Attachment 1, the Sampling and Analysis Plan. WHC is currently upgrading a number of Analytical Laboratories on the Hanford Site as well as designing a new hazardous waste laboratory. Therefore, to maintain flexibility in the work plan, specific on-site	

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			and off-site laboratories have not been identified but will be selected based on availability of services (both capability and capacity) when the sampling effort is to be accomplished. This action has been included as a separate activity under all of the sampling tasks and the choice of laboratory(s) will be held to the specific procedures of this plan by the use of internal work orders for on-site facilities or by contract if an off-site facility is used as described in the Quality Assurance Project Plan.	
	144. Page 128, Section 5.1.1, P. 2: The purpose of the task is too narrow for the magnitude of the project. HAZWRAP		144. Reject. Comment is not specific. As indicated in P. 1 The Project Management Plan provides additional information.	
	145. The purpose of project management is to manage the project to stay within cost, on schedule., and with acceptable technical performance, that is, to meet project objectives. HAZWRAP		145. Accept. This comment appears to be related to comment 144. These additional purposes of project management have been included.	
	146. Page 128, Section 5.1.1: It is recommended that project management not be defined as a specific task but be included as a separate section to the work plan to document how the project will be managed. The project management organization is the mechanism through which the RI/FS-specific tasks are to be accomplished. HAZWRAP		146. Reject. The overall Project Management Plan is included as Attachment 5.	

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	147. Page 128: In the last paragraph, why is the 600 Area singled out? HAZWRAP		147. Reject. We assume the comment refers to the last paragraph of Section 5.1. Samples from the 600 Area are not expected to contain significant amounts of radiation and can be extracted and scanned in the field by the RPT.	
	148. Page 128 Section 5.1.1.5 Meetings: Obviously you are discussing more than one type of meeting. This section should describe in more detail the meeting types (public versus with DOE) and the frequency of occurrence. IT		148. Reject. Details on meetings are discussed in the Project Management Plan and Community Relations Plan.	
	149. Page 129, Section 5.1: The "composition of the samples" does not appear to be described as it is in the first paragraph of Sect. 5.1.2. HAZWRAP		149. Reject. It is not clear what this comment is referring to.	
	150. Page 129, Sec. 5.1.2, P. 2: Drilling through the top of cribs represents a challenging drilling operation, how will the holes be drilled? IT		150. Acknowledged. Drilling through the cribs does present a challenging drilling operation. Drilling will be conducted with dual-wall cable tool techniques as described in the second paragraph on page 132.	

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	151. Page 129, Last P: Add appropriate english unit after 100 meters for consistency. **RL**		151. Accept. Corrected.	
	152. Pages 130-131, Section 5.1: Figures 5-1 and 5-2 appear to be for Task 2 instead of Task 1. **HAZWRAP**		152. Accept. Figures 5-1 and 5-2 have been corrected.	
	153. Page 132: What are the facilities identified in the last paragraph? How does the new DOE Order 5400 affect "in-house" work? **HAZWRAP**		153. The 2706-T facility is an equipment decontamination facility designed for the handling of low level radioactively contaminated equipment. The entire T-Plant complex provides a variety of equipment decontamination techniques and methods (including remote handling) in support of Hanford Site operations. T-Plant is located in the 200-W area. This work plan assumes that the Operations and Engineering Contractor (WHC) can perform all aspects of the RI/FS work.	
	154. The three 600 Area borings are not shown on any figure. **HAZWRAP**		154. Reject. The location of the background shallow vadose zone borings have not been identified and will be dependant on results of Task 3 (surface scintillation survey) and Task 8 (topographic map). The locations could only be indicated in a very approximate manner at this time and it is not critical to indicate the borings on	

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			a figure in the work plan.	
	155. Page 134, Sec 5.1.3.1: These scintillation surveys should be referenced to standard procedures. RL		155. Reject. The conduct of scintillation surveys is discussed in the Sampling and Analysis Plan (Attachment 1). These survey's are performed by trained Radiation Protection Technologists in accordance with standard operating procedures and instructions for specific equipment utilized. It is not necessary to provide any additional detail in this section of the Work Plan on the conduct of radiation surveys.	
	156. Page 134, Section 5.1.2, last paragraph: Is there a procedure to be referenced for "archiving" samples? HAZWRAP		156. No. Procedures for archiving samples are under development.	
	157. Page 135, Sec. 5.1.3.3: Subsurface scintillation surveys should be conducted in accordance with approved procedures. RL		157. Acknowledged. They will be conducted in accordance with approved procedures.	
	158. Page 135, Section 5.1.3.2: Should the tank or tank farm be included? Are there transfer lines from the IT tanks part of this? HAZWRAP		158. No. The tank farm is not located within this operable unit. All underground transfer lines located within the operable unit are included.	
	159. Page 135, Sec 5.1.3.2: The soil gas sampling method to detect leaks in the effluent transfer lines is based on		159. Reject. As indicated in Section 5.1.3.3, soil probes will	

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	the presumption that the systems can be isolated and pressurized. There are no alternative methods of testing should this presumption be invalid. **NUS**		be installed along the underground pipes and scanned with a gamma scintillation detector to locate possible areas where the transfer lines may have leaked.	
	160. Page 137, P. 1: The sensitivity of the probe reading through the steel soil probe also needs to be tested. Bosch electric hammers have been used to drive soil gas access tubes into the ground 1.8 to 2.4 meters. **IT**		160. Acknowledged.	
	161. Page 137, Sections 5.1.3.4 and 5.1.3.5: "Elevated" and "highest" need to be quantified. **HAZWRAP**		161. Reject. Quantification will occur as a result of the field investigations. However, these statements will be clarified. "Elevated" refers to levels higher than background. "Highest" refers to the soils having the highest levels of radiation at a particular sampling location as determined by field screening using scintillation detectors.	
	162. Page 137, Sec. 5.1.3.6: Approximately 3 cubic feet of soil is generated in an 8 inch auger hole to 8 feet depth. Grouting the holes will require at least the same amount of grout. Back filling the holes with cuttings to within 2 feet of the surface and a 2 foot grout plug will provide the same end result and decrease waste and associated disposal costs. **IT**		162. Reject. There is uncertainty whether regulators will allow drill cuttings that are contaminated to be placed back into the borehole from which they originated. The cost increment for backfilling and proper disposal of three cubic feet of cuttings per boring should not impact the overall cost of the RI.	

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	163. Page 138, Section 5.1.4, P. 2: The WAC (?) document needs to be defined by title and number. Who drills the holes, and how do you ensure that they use this document? **HAZWRAP**		163. Accept. The title of Chapter 173-160 WAC "Minimum Standards for Construction and Maintenance of Wells" has been included. Wells are drilled by WHC or subcontractors under the direction of the WHC Field Team Leader. All licensed drillers in the state of Washington are required to comply with these requirements. The requirements are included in applicable WHC procedures for WHC drillers, and in procurement documents for any subcontractors. Borings that encounter groundwater are subject to this regulation.	
	164. Page 138 Section 5.1.4: You state that prior to implementation of drilling activities, a re-evaluation of drilling techniques will be conducted. Who will be responsible for conducting this evaluation? Who will have input into the evaluation process, and ultimately, who will be responsible for the final decision? Will there be any review and input into this decision making process? **IT**		164. Reject. Drilling techniques must be specified in technical procedures for the implementation of activities during the RI. Procedures are in place for review and approval of technical procedures for activities conducted at the Hanford Site.	
	165. Page 139, Section 5.1.4, last paragraph: Because there is a very long time from the start to the end of the RI/FS, it may be wise to hold "proper abandonment" until late in the project. **HAZWRAP**		165. Acknowledged. Abandonment of borings may be required immediately after borehole geophysical logging depending on the encountered subsurface conditions and the potential for boreholes to provide a conduit for contaminants to reach	

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			the groundwater. It would be beneficial to be able to geophysically log the boreholes in time to evaluate changes occurring with time. The best time to abandonment the borings will be evaluated once more information is obtained.	
	166. Sections 5.1.5 and 5.1.6: Specific purpose should be provided. **HAZWRAP**		166. Reject. Comment is unclear. Specific purposes for these tasks are provided.	
	167. Page 139, P. 4: General Comment This survey can provide valuable data if it works. Similar studies in similar media (unconsolidated sands and gravels over indurated media with a paleosurface) were not successful in determining the presence of paleotopographic features. The results of the survey should be verified with at least one boring into a paleo-low as determined by the survey. **IT**		167. Reject. Refer to response to comment number 139. Existing wells are planned for control and interpretation. Some monitoring wells will be installed within identified paleochannels and will serve for verification.	
	168. Page 140, Sec. 5.1.6: A basic premise to groundwater monitoring plan seems to be use of existing wells. What is planned to verify whether existing wells can in fact be used? **IT**		168. Reject. An evaluation of the adequacy of existing wells is planned prior to the installation of additional wells. Several criteria will be assessed for use of existing wells. Existing wells will be assessed whether they are adequate for water level measurements, water quality evaluations and hydraulic pump tests. Much will depend on the	

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			availability of borehole drilling records and well construction and installation records. Verification may be required if sufficient information is not available and the location of the well is important to the RI objectives. Verification could incorporate sounding the depth of wells, caliper and/or geophysical well logging, temperature profiling, flow monitoring and possibly downhole television recording of the interior of wells.	
	169. Page 140, Section 5.1.6: The two existing wells addressed on Figure 2-2 apply here too. **HAZWRAP**		169. Accept. See response 30.	
	170. Page 140, Sec. 5.1.6, Task 6-Installation of Monitoring Wells: Suggest additional objective of obtaining hydraulic, chemical and geologic data to be used in predictive modelling studies to assess remediation alternatives, site characterization and predictive health risk assessment. **RL**		170. Accept. It is agreed that these additional objectives are important to the RI/FS. Geologic data should and will be expressly identified as an objective to Task 6. The suggested objectives for obtaining hydraulic and chemical data is better associated with Tasks 11 and 7, respectively.	
	171. Page 140, P. 5: add another objective: Determine the surface elevations of the uppermost basalt stratum. These wells will provide additional data on the surface of the uppermost basalt as they will be drilled		171. Accept. See response to comment number 170.	

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	and completed 2 meters into the basalt. IT			
	172. Page 142: Consideration should be given to designing and constructing new boreholes to specifications suitable for use as pumping and/or injection wells for remediation activities. RL		172. Accept. The diameter of the proposed monitoring wells for the unconfined aquifer will be increased to six (6) inches. The obvious advantages of installing larger diameter wells that would be suitable for water quality and capable of producing significant quantities of water is attractive. The disadvantages include higher cost for drilling (requires a larger diameter borehole) and for installation (larger diameter well screens and well casings). Larger quantities of groundwater would have to be purged for obtaining a sample for chemical analysis, which may require capture and treatment. In addition, most of the installed monitoring wells will probably not be in an appropriate location for remedial action. Since the saturated thickness of the unconfined aquifer that is north of 200-BP-1 is anticipated to be thin (<6 meters), larger diameter wells would not produce large amounts of additional water during purging for samples, would provide more flexibility during hydraulic pump testing and potentially be useable for remedial action.	

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	173. Page 142, Section 5.1.6, general comment: Although cable tool drilling is an effective way of drilling, a general comment from the Hazardous Waste Remedial Actions Program is that its' effectiveness does not justify its use considering the fact that it takes approximately four times as long to complete a well and most drillers will charge for well completion by the hour, making cable tool, in the long run, very expensive. Other methods have been proven to be just as effective. In this investigation, air rotary with advanced casing seems to be appropriate. HAZWRAP,RL		173. Acknowledged. Comment is correct regarding some of the disadvantages of cable tool drilling. However, it is the only drilling technique currently used at Hanford. Other methods, including air rotary will be evaluated for use in this task as indicated on page 142 paragraph 2.	
	174. Page 142 Section 5.1.6: Why are no cluster well sets planned to help determine vertical gradients as per objective number 5? IT		174. Reject. A couple of proposed monitoring wells for the confined aquifer are located adjacent to existing wells that monitor the unconfined aquifer. The result will be a cluster of wells monitoring both aquifers at several locations (including existing cluster wells). The need for additional cluster well locations or for cluster wells including the next lower confined aquifer (Selah Interflow) will be assessed after data is reviewed from Stage 1 of Task 6 (see Section 5.1).	
	175. Page 145, Table 5-2: The objectives for wells 52-54, 52-57 and 55-55 are stated to be numbers 1,2,5 and 6, there are only 5 (five) objectives listed on page 140. IT		175. Accept. Corrections will be made.	

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	176. Page 146, P. 3: The construction described herein would monitor only the tops of the unconfined aquifer. Is there no need to monitor the bottom of the unconfined aquifer? Has consideration been given to designing the wells such that both the top and the bottom of the aquifer can be monitored in a single borehole (dual completion)? **RL**		176. Reject. The unconfined aquifer is expected to have a saturated thickness less than six meters, except where the Elephant Mountain basalt is either deeply eroded or absent. It is currently planned to monitor the entire saturated interval of the unconfined aquifer or the uppermost 6 meters of saturated sediments if the unconfined aquifer is much thicker. EPA guidance documents do not advise the installation of multiple wells in a single borehole.	
	177. Page 146, Section 5.1.6, P. 3: By inference, the description of your well construction procedures indicates that you will be installing stainless steel screens in excess of 30 ft. First, if you are planning to install screens in this length or greater, you should specify the rationale why the long lengths have been selected. Screen lengths this long are somewhat unusual. Normally long screen lengths are selected for general groundwater characteristic screening. They hold little value for defining contamination within specific horizons. **HAZWRAP**		177. Reject. The maximum length of a well screen will be 25 feet(5 feet of which is above the water table). As stated in the response to comment number 176, the unconfined aquifer is expected to have a saturated thickness that will result in well screens being shorter. Based on existing borehole records, the unconfined aquifer does not appear to have soil stratification that will result in significant variation in concentration with depth. In addition, the contaminants from 200-BP-1 are solutes which will not stratify by themselves, but will tend to disperse. Fully penetrating well screens (or	

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			monitoring a maximum 20 foot interval) will provide good representation of aquifer water quality and enable better hydraulic pump tests. If during drilling stratification is identified in the the unconfined aquifer, the well screens placement will be modified accordingly. Care will be taken so that well screens will not be placed as to intercommunicate these hydraulically separated zones.	
	178. Page 146, Section 5.1.6, general comment: Why have stainless steel wells been selected? These types of wells are very expensive, especially in the total lengths, screen lengths, and diameter you will be installing. The selection of long screen lengths usually precludes the selection of (178 cont.) stainless steel because the purpose of long screen lengths is not entirely compatible with the selection of stainless steel. It would be cheaper and just as effective to put in low carbon steel wells. The characteristics of low carbon steel in this hydrogeological environment would be similar to that of stainless steel. HAZWRAP		178. Reject. The decision to utilize stainless steel in the construction of groundwater monitoring wells was established in Kasper, R.B., and Myers D.A., 1987, Engineering Study: Technical evaluation of materials and methods for the construction of groundwater monitoring wells at RCRA regulated LLBG in the 200 areas, Hanford Site, SD-RE-ES-037, Rockwell Hanford Operation, Richland, Washington. This study provides the basis for the construction of groundwater monitoring wells on the Hanford Site. Carbon steels and galvanized were considered unacceptable due to proven long-term corrosion problems encountered in existing groundwater and vadose	

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			zone monitoring wells at the Hanford Site. It is assumed that the wells being drilled to characterize the aquifer may be also used as part of the post-remediation monitoring program.	
	179. Page 147, Section 5.1.6, Table 5-8: The diagram does not show that the riser pipe will have a vented well cap. This should be included. **HAZWRAP**		179. Reject. The dedicated pump system will have a vented cap.	
	180. Page 147, Fig. 5-8: There is no technical validity for the 6 inch pump support steel casing. This is just an additional cost both in terms of labor and materials. The pump can be secured by a well seal on the 4 inch or by welding to the 10 inch protective steel casing. Additionally, there is no discussion of materials and sizes for the pump, drop pipe, electrical wire and ancillary fittings. **IT**		180. Reject. The pump support is expected to have a minimal incremental cost, will cost less than welding to the 10 inch protective casing, and could possibly extend the life or reduce maintenance of the well.	
	181. Page 148 Section 5.1.6, P. 1: How can you make a comparison of samples from 52-57 and 55-55 taken at 25-foot depth intervals to vadose zone samples taken elsewhere in 200-BP-1 at 2.5-foot intervals? **IT**		181. Accept. The text will specify samples will be analyzed from approximately the same elevation.	
	182. You should specify what type of stainless steel you are planning to use (304, 316, etc.) and the schedule for that casing (5, 10, etc.). **HAZWRAP**		182. Accept. The schedule and type of stainless steel will be specified.	

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	183. Stainless steel centralizers are mandatory for wells that will be installed to these depths, however, the centralizers should not be placed within the screened interval itself but just above and below the screen and at 50-ft intervals along the riser length as measured from the bottom up. **HAZWRAP**		183. Accept. Centralizers will be specified at the bottom and top of the screened interval and regularly at 50 foot intervals to land surface.	
	184. Page 148, Section 5.1.7, P. 1: You may want to specify in this paragraph that all groundwater samples will be obtained from dedicated systems as specified in a previous section of this document. However, the dedicated system previously specified was not delineated as to what the dedicated system would include, that is, purging and sampling capabilities or, just sampling capabilities. **HAZWRAP**		184. Acknowledged. A dedicated pump system was not specified at this time because new pump technologies and materials are emerging. Currently, the "Hydrostar" would be recommended which has both purging and sampling capabilities.	
	185. If samples are going to be filtered before preservation, it is recommended that in-line disposable filters be used. This would also require that a filter blank be run for each change in filter lot number.		185. Acknowledged. This detail is better suited in technical procedures rather than in the Work Plan.	

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	186. Page 148, Section 5.1.7: Is there a table of total samples that will be taken? How will existing and new well samples be integrated? HAZWRAP		186. There is no table for the total number of samples. The second part of the comment is unclear. New wells will be included in the sampling schedule once they are completed. Existing and new wells will be sampled during the same time period to ensure comparability of the data.	
	187. Page 148 Section 5.1.7: Consideration should be given to establishing a network (representative percentage of existing wells) of monitoring wells to be sampled quarterly to determine the seasonal variations which exist in the hydrogeologic system at this site. This would be important for designing any treatment-extraction system which may be needed for remediation. Also, Records of Decision (RODs) are not established, they are however, approved. IT		187a. Accepted. One year of quarterly data will be included for parameters of interest and major water quality parameters for each well in the monitoring network that does not have this data or is installed. This will establish a baseline for seasonal variation. 187b. Accept. Corrected.	
	188. Pages 149-150: With only these wells identified, how are the BP-3, 7, 4, and burial grounds isolated as not contributing to the problems? HAZWRAP		188. Reject. Twelve existing wells and two new wells are identified in these tables as providing information on potential contributions from these operable units.	

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	189. Page 151 Section 5.1.7.1: What procedures will be followed to develop the methods for analysis of cyanide and ruthenium-106? Who will review and who ultimately has responsibility for approval of these methods? IT		189. The Level V Special Analytical Service Procedures for Cyanide and Ruthenium-106 will be developed by the WHC Analytical Laboratory Organization. Possible approaches to be considered for the development of these procedures is presented in this section of the work plan. The WHC Analytical Laboratory organization will ultimately approve these methods and include these procedures in their laboratory procedures manual. However, all analytical procedures will be subject to the review and comment by DOE and the regulators.	
	190. Page 153, Method 2, detection: what is meant by the "@" symbol? RL		190. Accept. This typo has been removed.	
	191. Page 154, Section 5.1.7.2, P. 1, first sentence: The first sentence specifies that groundwater samples will be obtained using standard procedures. What are these standard procedures? Please reference. HAZWRAP		191. Accepted in part. Groundwater sampling is conducted by Pacific Northwest Laboratory in accordance with PNL Ground-water Sample Collection Procedure (GC-1) contained in PNL-MA-567, "Procedure for Ground-Water Investigations". However, it is not necessary to discuss specific implementing procedures in this section of the work plan. This procedure will be referred to in the Sampling and Analysis Plan.	

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	192. Page 154, Section 5.1.7.2, P. 1, fourth sentence: The sentence specifies that purged groundwater will be captured and properly disposed of depending on its quality. What is the method of disposal? Specify the methodology or reference where it can be found. How will the quality be determined in the field? This phrase suggests two disposal scenarios? What are they? Explain how they will be accomplished or provide a reference. **HAZWRAP,RL**		192. Accept. See response 191. Groundwater sampling and disposal of purgewater is conducted by PNL according to their procedures. Disposal of large quantities of well construction development water is described in WHC procedure EII 10.3 - Disposal of Well Construction Development Waters (Purgewater Disposal). This procedure contains two methods for disposal. Water with contaminants exceeding drinking water standards will be disposed at a liquid waste disposal site. Water that does not exceed DWS will be disposed on the ground.	
	193. Page 154, Section 5.1.7.2, P. 2: This paragraph suggests that the new wells will be sampled after installation and then not again for another 6 months. To adequately characterize the groundwater from new wells, at least two sampling rounds (for statistical purposes, quality assurance (QA), and confirmation) should follow monitoring well installation. As a guideline, the first sampling round should occur 1 week after well installation and the second approximately 1 month later. These times can vary depending upon site-specific variations. **HAZWRAP**		193. Accept (partially). It is agreed that wells should be sampled soon after they are installed, but do not agree on sampling 1 month later. Each well will be sampled quarterly for 1 year (see response to comment number 187) which should be adequate for the site conditions.	
	194. Page 154, P. 2: It should be clearly stated that the wells will be sampled using the dedicated submersible in lieu of the RCRA TEGD recommendation of bailers or low		194. Acknowledged. Bailers were never implied as a groundwater sampling device. The dedicated	

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	volume pumping systems that have inert materials contacting the water. The use of the submersible pump is appropriate for the parameters listed on page 154 as bulleted items. **IT**		pump will be compatible for sampling radionuclides, inorganics and organics (volatiles and semi-volatiles) incase the wells are required for such use.	
	195. Page 156, Sec. 5.1.10: Use "rainwater" instead of "meteoric water" throughout this section. **RL**		195. Accept. Suggested change has been made.	
	196. Pages 156-159, Task 11-Aquifer Tests: Delete references to "qualified hydrologists" as all work should be performed by qualified people. What criteria will be used to define "qualified"? **RL,IT**		196. Accept. "Qualified" has been deleted from this sentence. EII 1.7 Indoctrination, Training and Qualification defines the necessary qualifications for personnel.	
	197. Page 156, Section 5.1.10: Column leach tests are only going to give the researcher a "ball park" idea as to the propensity for contaminants to leach to groundwater because the original structure of the vadose zone (physical properties of the soil) have been destroyed during the construction of the test equipment. Therefore, the test is mainly going to assess the chemical affinities between contaminants and soil. The physical attributes of the relationship will not be determinable. **HAZWRAP**		197. Reject. The column leach test is designed for assessing the chemical affinities between contaminants and soils. As described on Page 156, 1st paragraph, tests for evaluating fluxes of infiltrating rainwater (which involves physical attributes of the relationship) should be conducted independently of this RI for application to this and other operable units in the Separations Areas.	
	198. Page 158, Section 5.1.11, P. 1: Because each new well must be developed before it is completed, it is suggested that Well Development Recovery Tests be		198. Reject. Well Development Recovery Tests will be conducted, when possible, for additional	

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	performed on each of the new wells installed. This is accomplished at the conclusion of well development, that is, as the pump is shut off at the completion of well development. This test, much like a slug test, will give the hydrogeologist another "piece of the puzzle" or another bit of information that may be used in assessing the hydraulic properties of the aquifer. **HAZWRAP**		information. These tests are normally considered standard procedure during well development, but are normally considered qualitative depending on the method. Since the water quality of a newly installed well would have to be considered potentially contaminated until characterized from proper sampling and analysis, development water may require capture. The most appropriate method chosen for well development may be dependent upon minimizing development water, which are less conducive to obtaining useful and quality hydraulic data for the aquifer. Well development recovery tests are useful, but are more appropriately included within Technical Procedures than in a Work Plan.	
	199. Page 158, Section 5.1.11: How will the slug testing be used? What if the test cannot be taken as described in the first paragraph on p. 158? (Is there need for a substitute method? What information is lost and how does it influence the data, etc.?) **HAZWRAP**		199. Reject. Slug tests will be conducted on wells for assessing transmissivity of saturated stratum and may be a practical method when groundwater requires capture. If the transmissivity of the aquifer is so high that slug tests are not providing useable or consistent data, constant discharge drawndown and recovery pump tests will be considered if water can be discharged to the ground surface. In the event that both types of	

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			tests cannot be conducted in a practical manner (i.e., too much water requires capture), the results of the attempted slug test will provide a lower limit to the transmissivity and the importance of quantitative transmissivity information for the aquifer at that particular location will be reevaluated during Phase II FS. A pump test could be conducted during Phase II RI in that location if essential for the conclusion to the RI/FS process.	
	200. Slug testing with extremely long screens will be somewhat difficult. It is recommended that both rising and falling head tests be conducted in these wells as opposed to just the rising head tests to provide additional information supporting the overall aquifer characteristic assessment and that these tests be performed twice for each well. **HAZWRAP**		200. Reject. Only rising head tests should only be conducted on water table wells with gravel/sand packs around screens that extend above the water table. Falling head tests (slug injection) introduces more variables (water rising up the gravel/sand pack) which are more difficult to interpret.	
	201. It should be specified in this section that the rationale for the well development recovery tests, slug tests, step-drawdown test, and 24+-hour pump test is to develop a linear approach toward the final pump test. The purpose behind the linear approach is to provide a sequential, logical, and integrated aquifer characterization program in which the results of each type of test will add to the fine tuning of the next level of testing and aquifer characterization.		201. Not Clear. The rationale for conducting the hydraulic tests are stated on Page 156. It is true that the sequential conduct of tests provide results that can be used for fine tuning the next tests, but slug tests may be the only test conducted on some wells. It is also unclear what is	

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	HAZWRAP 202. Page 158, Sec 5.1.11: If groundwater is contaminated, consideration should be given to containing the pumped water in tanker trucks and disposing of it at an evaporator for one of the tank farms or at a suitable wastewater treatment facility. NUS 203. Page 158 Section 5.1.11 Aquifer Tests: Any water discharged onto the ground during the drawdown/recovery pump tests, must be well outside the zone of influence where the test is being conducted! Pre-slug test water level recording of .5 hour seems much too limited to ascertain any antecedent trends. IT		considered the final pump test. Is the final pump test in the comment, referenced the 24+ hour test or test that may be conducted during Phase II RI. 202. Acknowledged. Uncertainty exists regarding what will be considered contaminated ground water that requires capture, what will be the quantity of captured ground water, and what will be an acceptable disposal or treatment of the captured water. The possibility exists that pump testing could generate water in the hundreds of gallons per minute range, which could require a fleet of tanker trucks or inundate an evaporator system at a tank farm. When these uncertainties are better defined, the most appropriate capturing and disposal/treatment methods will be used which may be the use of tanker trucks and disposal/treatment methods provided in the comment. 203a. Acknowledged. Details on the discharge of water will and should be specified for each well being pump tested. Depth to the water table, infiltration characteristics of the vadose zone, anticipated hydraulic parameters of the tested aquifer, whether the	

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			tested well is in the water table or the confined aquifer, and local surface topography needs to be factored in the discharge of water from a pump test which does not require capture of the water. These details or the manner in which these details are determined are more appropriately specified in technical procedures for conducting pump tests. 203b. Reject. The antecedent trend which is useful for pump test data reduction and interpretation is related to the duration of the pump test. Slug tests are anticipated to be conducted in less than 30 minutes (some tests in the unconfined aquifer may be completed in less than 10 seconds). The specified 0.5 hour should be more than adequate for extrapolation of the antecedent trend during the test period.	
	204. Page 158, last sentence: Antecedent water trend data need be collected for a period long enough to predict accurately the trends of all monitored wells expected to be influenced by the test through the pumping and recovery period. To do this with confidence a period several times longer than the combined pumping period and recovery period for the slowest impacted well is generally necessary. **HAZWRAP**		204. Accept. It is always better to have longer term data for antecedent trend evaluation for longer term pump tests. Several times the tests duration seems excessive. The duration will be changed to represent the anticipated duration of the hydraulic test including recovery in observation wells or until the	

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			trend can be adequately predicted for the test duration, whichever is longer. If antecedent trends needs to be better defined, they can also be measured immediately definitely after the pump test.	
	205. Page 158, P. 4: General Comment on Slug Tests. The slug should be constructed with a volume larger than the sand pack of the sell. Slug tests in unconfined aquifers should be analyzed by the Rice and Bower method. Most other methods are for confined aquifers. IT		205. Acknowledged. Well construction must be factored into the design of the slug tests. Rice and Bower (Water Resources Research, June 1976) is an appropriate method of analysis of slug tests in unconfined aquifers.	
	206. Page 159: Pre-drawdown/recovery monitoring of water levels should be conducted for a week--minimum. IT		206. Reject. Pre-drawdown / recovery monitoring should not be fixed but dependent on the duration of the test and observed conditions. See response to comment number 204.	
	207. Page 159. P. 2: This paragraph discusses the length of the pumping portion of the test, the recovery data generally generates better curves and this data should be collected until the water level reaches a level near the static pre-test conditions (95%) or 24 hours after the pump was stopped. IT		207. Accept in part. A description that defines how long the recovery data will be collected will be incorporated. The description will state "until the water level reaches near static pretest conditions (95%)," but to specify a time (24 hours) is not appropriate for observation wells or in the pumping well if the length of the pumping period can be variable.	

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	208. Page 160 Section 5.1.12: I don't recommend doing sorption tests on anything less than an undisturbed sample of the geologic material. Sorption capacity of materials is not only affected by composition, but packing (porosity) also has a lot to do with how contaminants are partitioned. To gain useful information from these laboratory tests, only the undisturbed soil columns should be used. IT		208. Reject. The Freundlich Isotherm and the Distribution Coefficient can be estimated from disturbed samples as long as the initial test conditions are defined. The Freundlich Isotherm and the Distribution Coefficient are used to estimate solute retardation in the aquifer flow system which is dependent on in situ bulk mass densities and porosities. Both in situ parameters can usually be adequately estimated for unconsolidated aquifer matrices (Freeze and Cherry, 1979) without obtaining undisturbed samples. Drive samples will be collected from the aquifer matrix and will be characterized but must be considered slightly disturbed. It is unlikely that undisturbed samples can be obtained from these course grained materials.	
	209. Page 161, P. 1: Is continuous agitation a required method? It is likely that there would be significant differences between this methods results and those of a flow through test. RL		209. Reject. The test is to determine an equilibrium condition (not simulation of actual groundwater flow) between the water phase and the solid phase, which agitation will promote.	
	210. Page 161, P. 1: Another possible method to completely mix the soil and solvent is to place the bottle in an ultrasonic bath and sonicate the sample. This		210. Acknowledged. Agreed. The technical procedure has not been developed to date, but will specify	

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	method prevents clay clumping which can occur in gentle agitation shakers. **IT**		agitation techniques.	
	211. Page 163 Section 5.1.13.2 Exposure Assessment: A manual which is currently under development by EPA should not be referenced. It is conceivably possible this document would not be ready for public distribution before the exposure assessment is completed at Hanford. **IT**		211. Reject. Many of the documents cited are in preparation or draft form including the March 1988 RI/FS guidance.	
	212. Page 165, P. 1: Define the term "surrounding ecological receptors". **RL**		212. Accept. "Surrounding ecological receptors" has been identified as the plants and animals that may be impacted from the contaminants at the operable unit.	
	213. Page 165, Sec. 5.1.14: This should address the evaluation and use of existing data as well as all new data. **NUS**		213. Accept. Evaluation of existing data has been included in this section.	
	214. Sections 5.2, 5.3, 5.4, and 5.5: The feasibility portions of the document needs much more information on what, who, and how the work will be accomplished. **HAZWRAP**		214. Rejected. Sections 5.2 through 5.5 provide the general plan for what is required to be accomplished during the various stages of the feasibility study and the second phase of the remedial investigation. Since these Sections are strongly dependent on what is found during the tasks identified in the Phase 1 RI it is not prudent to include lengthy discussions of these phases in the	

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			work plan. The conduct of the feasibility studies will be in accordance with the various EPA guidance documents which are referenced. As currently planned WHC or a consulting subcontractor will accomplish all or portions of the feasibility studies.	
	215. Page 166, Sec 5.2.1, P. 2: Risk assessment for non-human biota, "environment" has not really been addressed as implied here. **RL**		215. Accept. "environment" has been changed to "non-human biota" in this sentence.	
	216. Pages 166 and 169: All references to Sections 3.5.1 and 3.5.2 should be changed to Sections 3.4.1 and 3.4.2 respectively. **HAZWRAP,NUS**		216. Accept. Corrected.	
	217. Page 167, Table 5-5: Section 4 of the RI report outline should include biota as a potentially contaminated medium, as indicated in Task 9 (page 155). **NUS**		217. Accept. Section 4.1.6 Biota, has been added to Table 5-5.	
	218. Page 169, Section 5.2.5: The term "process options" should be qualified or examples presented to distinguish the screening evaluation for process options from the similar screening evaluation of alternatives. **HAZWRAP**		218. Accept in part. The screening evaluation of process options relates to technologies and not alternatives. For example a variety of process options may be screened for the technology - physical/chemical treatment for groundwater depending on the types of contaminants to be treated. An example has been included in the text.	

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	219. Page 172 and 179, Table 5-6, Table 5-8: The Executive Summary is missing. IT		219. Accept. An executive summary has been added to these tables.	
	220. Page 173, Sec 5.3.1.1, P. 1, sentence 2: This statement is confusing, how can multiple media protect the environment? RL		220. Accept. This sentence has been modified to state, "However, protectives of human health and the environment may be dependent on meeting remedial action objectives for multiple media".	
	221. Page 174, Sections 5.3.2.1 and 5.3.2.2: Please explain how these evaluations will be accomplished. RL		221. The evaluation of effectiveness and implementability of the various alternatives will be accomplished by quantitatively comparing the various alternatives to a number of criteria in the form of an engineering type study. These evaluations and the criteria to be considered will be in accordance with EPA guidance documents. The text in the work plan summarizes the major criteria to be considered in performing these evaluations.	
	222. Page 180, P. 5: Water drawn from contaminated areas will possibly be considered hazardous waste by regulatory agencies, There needs to be a section addressing control/disposal of water pumped during these aquifer tests. RL		222. Acknowledged. Currently the location of additional pump testing during Phase II RI has not been determined. We have indicated that this activity may be conducted in conjunction with a treatability	

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			test if capture and treatment of contaminated water is necessary.	
	223. Page 187 Table 5-9: The Executive Summary is missing. Item 6, incorporate 2 subsections; 6.8 Acceptance 6.9 Summary of Comparisons Include also, Bibliography and Appendices. IT		223. Accept in part. The Executive Summary, Section 6.8 Acceptance, and the Bibliography and Appendices have been added. Section 7 contains the Summary of Comparisons. The title of this section has been changed to Summary Comparison of the Remedial Alternatives.	
	224. Page 187, Table 5-9: The preliminary outline of the Phase III Feasibility Report omits the comparison among alternatives and presents a selection of remedial alternatives. The comparison analysis serves to "highlight the relative advantages and disadvantages of each alternative so that key trade offs can be identified." The selection of an alternative (remedy) is made by EPA after input from support agency reviews, public comment, Hanford Contractors and DOE. The selection of the remedy is not a portion of the FS process. IT		224. Accept in part. The outlined for the Phase III feasibility report has been revised. Section 7 has been revised to be a summary comparison of the remedial alternatives and section 8 has been deleted. Per the most recent draft tri-party agreement action plan, a separate document, referred to as the Proposed Plan, will accompany the Phase III feasibility study recommending to the regulators the preferred alternative.	
	225. Page 188 Schedule: This doesn't seem like an overly complicated site--rather simple in reality. Therefore, a 5 year time frame to complete the RI/FS seems outrageous! It also does not fit in the with the intent of SARA which was meant to streamline the process. Congress mandated deadlines to EPA for completions to		225. Reject. We feel this is a realistic schedule. The site has a number of complicated features. These include: the problems associated with drilling to depths in excess of 200 feet in highly	

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	speed up the process and many of the EPAs RI/FS's prior to SARA (1986) were less than 5 years for complicated sites. IT		radioactive environments; determining leaks from underground radioactive distribution lines; laboratory capabilities for TCL analysis of highly radioactive samples; and evaluation of non-proven or demonstrated remedial technologies. In addition, there will be many competing demands for laboratory and drilling resources at Hanford. The approved schedule will be incorporated into the agreement with EPA and Ecology. It is prudent to develop a realistic schedule since compliance will be required. RI/FS projects have not been completed at mixed waste sites to provide any historical information on the length of time normally required for such sites. For example, preparation of the 200-BP-1 RI/FS work plan from initiation to final agency approval is anticipated to take 14 months. This is substantially longer than normal non-mixed waste CERCLA sites. We are willing to discuss any specific suggestions for expediting the schedule.	

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	226. Page 189, Figure 6-1: This schedule is too drawn out. EPA Superfund RI/FSs are about one half the proposed duration, PRP RI/FSs average about 18 months. This is one rather small site with only 9 cribs and three spills. The periods to conduct the FS portion is way over estimated with respect to the waste disposal at the 9 cribs. IT		226. Reject. See response 225.	
	227. Section 6.0, figure: For tasks 2A, 3A, 4A, 5A, 6B, 8A, 10A, 11A, and 12A, what is being prepared? HAZWRAP		227. Accept. A brief description of the activities involved in preparation will be included with the task descriptions.	
	228. Is there a report to be prepared for Tasks 7 and 13? HAZWRAP		228. No. Results of these Tasks will be included in the RI report. See Task 14 and Table 5-5.	
	229. Is there a work plan for RI tasks 9 and 13? HAZWRAP		229. Comment is unclear. These tasks are described in this work plan and the Sampling and Analysis Plan. Separate work plans for these tasks will not be prepared.	
	230. The schedule shows Headquarters and regulatory review of the FS report. What about the RI report in III task 14? (In accordance with the EPA guidance, task 8 says: "the task ends when the last RI document is submitted to EPA.") HAZWRAP		230. Reject. The schedule does include DOE Headquarters review of the Phase I RI Report. The Phase I RI report is defined in the Action Plan as a secondary document. It will be submitted for regulatory review and comment. However, EPA and Ecology have the option to	

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			comment or take no action. Secondary documents are not subject to dispute resolution.	
	231. Page 189, Table 6-1, Project Schedule: I do not understand what has been included in subtasks 2A, 4A, and 6B. Each of these subtasks is 7.5 months long and comes under the heading of preparation. **HAZWRAP**		231. The Sampling and Analysis Plan provides additional details on what is required for tasks 2A, 4A, and 6B. Items such as development of technical specifications for corings and monitoring wells, obtaining excavation and radiation work permits, writing pre-job safety plans, scheduling drill rigs and other equipment, ensuring availability of the analytical laboratories, and review or development of procedures are all included within this activity. However, to more clearly delineate the time required for these items and others on the schedule, the schedule will be modified to show "slack time" in an effort to more accurately present the length of time actually required for each activity vs the time frame available for the conduct of each activity.	
	232. Why is Task 11 scheduled to occur 8 months after the completion of the monitoring wells? Should this be included as a task that is ongoing while the drilling crews are still in the field? **HAZWRAP**		232. Reject. Task 11 begins about three months after monitoring wells are completely installed. Water quality of the installed wells should be defined prior to	

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			conducting the hydraulic tests, since the type of test will depend on the quality of generated water. All tests were scheduled to occur during the same period of time which would permit the use of the same test crew for consistancy.	
	233. Screening of selected alternatives call begin at the completion of Task 2 instead of at a time almost 2 years later. **HAZWRAP**		233. Accept. Screening of selected alternatives will begin earlier, but cannot be completed until after Phase I RI report is finalized.	
	234. Page 189, Table 6-1, general comment: there are too many tasks that are linearly developed thereby increasing significantly the length of the schedule. Many of these tasks can begin much earlier than specified in this schedule. For example, the Phase II RI does not occur for almost 18 months after the fourth groundwater sampling round. There are numerous other instances of this linear planning. **HAZWRAP**		234. Accept in part. Certain tasks and Phases can begin earlier. The example involving Phase II RI cannot begin immediately after Phase I RI because data needs for Phase II RI will be determined during Phase II FS. The schedule will be revised to begin Tasks and Phases earlier where possible. As specified in the most recent draft of the Action Plan, Phases I and II FS will be combined into a single report which will reduce the schedule. These changes will be incorporated into the schedule.	
	235. Page 190, Section 7.0: It is not clear which documents are being invoked at the work plan level. All the documents were not referenced in the text, therefore, this section appears to be a list of works on a specific subject (a bibliography).		235. Accept. This section is intended to be a reference section of documents cited in the text. It has been corrected to delete all references not cited.	

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	236. It is recommended for all the plans that (1) the reference section contain only the documents being invoked for developing the work plan and (2) the references be numbered and identified in the text by that reference number when appropriate. It is not clear which document is being referenced in the text, for example, p. 5, paragraph 1, first sentence and p. 76, last paragraph. These are important references that should be clearly identified as sources of requirements/guidances. HAZWRAP		236 (1) Accept. See response 235. 236 (2)Reject in part. The WHC style guide, which has been approved by DOE, was used for citing references. The references noted in the comment have been corrected.	
	237. Page 194 Section 7 References: Reference (EPA, 1988a) has the wrong OSWER directive number. It should be 9355.3-01 Reference (EPA, 1988b) is also cited wrong. It should be OSWER directive 9283.1-02. Reference (EPA, 1988c) cited in text is not listed. IT		237. Accept. References have been corrected and EPA, 1988c has been included. Volume 2 Sampling and Analysis Plan	
	238. Page 1, P. 1: The 200 BP-1 unit is in the <u>northwestern</u> portion of 200 E Area.		238. Accept. Corrected. Field Sampling Plan	
	239. General: The importance of the EII documents is such that they really should be available for reference. IT		239. Accept. All EII's will be cleared and made available for regulatory agency review. See attached Table of EII's and comment resolution 242.	

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	240. General: The tasks that discuss borehole drilling and monitor well sampling should address the handling and disposal of cuttings. **NUS**		240. Acknowledged. The handling of contaminated water or soils is specified in the EII's for the specific field activities being conducted, see comment resolution 242. In addition, procedures for the disposal of non-radioactive hazardous waste and the disposal of well construction development waters are also contained in individual EII's. The reference to these procedures is contained in the Sampling and Analysis Plan (Attachment 1). Criteria for establishing contamination is specific by Federal and State Regulations (including DOE orders) as outlined in the section of the Work Plan discussing potential Applicable or Appropriate and Relevant requirements.	
	241. General: There is nothing in the document that specifies how the contaminated water or soils are to be handled, what are the criteria for establishing contamination, and are any screening methods to be used to help delineate the contaminated materials. In general, on hazardous waste sites, if you do not know if the material is contaminated you must assume that it is until the analytical results prove otherwise. **HAZWRAP**		241. Acknowledged. See response 240.	

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	242. Generally speaking, the plan covers all the aspects it is supposed to. It breaks down, however, when it comes to the "meat and guts". Actual procedures are either vague and not specific or a WHC manual is cited for procedures. While it is appropriate to cite such a document for reference, if it is cited, it must be incorporated as an attachment or appendix. How can the regulatory agencies give approval for procedures which aren't part of the document they review? Also, by definition, The Work Plan is an all encompassing document. The procedures to be followed in the field must be part of it, not filed away in some office somewhere on site. The plan must be very "how" oriented so there are no questions raised once field work begins. IT		242. Acknowledged. All EII's that are referred to in this document will be cleared and made available to the regulators for review in accordance with the schedule on the attached table of EII's. This Table will be included in the Sampling and Analysis Plan. To minimize redundancy and keep the length of each individual RI/FS work plan to a manageable level, the applicable procedures will be referenced but will not be included in each work plan. It must be kept in mind that this work plan is just to support one of the 74 source operable units associated with the Hanford Sit and many of the same work procedures and field support groups will be utilized again and again on subsequent remedial investigations. All other WHC controlled manuals or procedures which are discussed in the text will be handled in accordance with the attached letter, G. W. Jackson to E. A. Bracken, "REFERENCING OF PROCEDURES IN REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLANS", 8950149, dated January 16, 1989. This letter also stipulates how the internal Quality Assurance Program Plan for CERCLA RI/FS Activities will be referred	

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			to in RI/FS Work Plans. If the regulators require access to these manuals or procedures then they would be required to perform an audit of the particular area of interest and at that time all materials necessary for their review would be made available.	
	243. General: The Sampling and Analysis Plan with references should be a document of sufficient detail that it could be given to any inexperienced technician and he/she could, if asked, complete a particular task as well as an experienced technician. This not only applies to technical tasks, but also to QA, QC, and administrative procedures as well, for example, filling out the site log book, chain-of-custody control, etc. **HAZWRAP**		243. Reject. The Sampling and Analysis Plan, when taken in conjunction with the specific work procedures and protocols (EII's) will provide sufficient detail for a technician trained in accordance with EII 1.7 (Indoctrination, Training and Qualification) to complete a particular task. In addition, based on the field team organization provided in the Project Management Plan (Attachment 5) oversight of the work will be provided by a field team leader, quality coordinator, health and safety officer, and radiation protection technologist.	
	244. Approval Page: Don't DOE and EPA need to sign this plan also? **IT**		244. Accept. The approval page for the Field Sampling Plan has been deleted. Approval of the entire project plan will be in accordance with the proposed Tri-Party Agreement. However, the Quality Assurance Project Plan	

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			still requires a specific approval page as specified in the EPA guidance documents.	
	245. General: Copies of the forms to be used for various field activities such as logging, sampling and chain-of-custody should be included for reference. IT		245. Reject. Copies of the forms used for field activities are contained within the EII's. See comment resolution 242.	
	246. Page 2, Section 2.1: Change Reservation to Site IT		246. Accept. Suggested change has been made.	
	247. Page 2, Section 2.2.1, line 8: groundwater from wells in (and around) the 200-BP-1. IT		247. Accept. Suggested change has been made.	
	248. Page 4, Section 2.2.4: Referenced document WHC EII 5.2 should be incorporated into work plan for easy reference. IT		248. Reject. See comment resolution 242.	
	249. Page 4, Sec. 2.2.4, P. 1: The language in this section is too vague, specific standards should be referenced to assure traceable work is done. IT		249. Accepted in part. Specific standards are included in the various EII's. See comment resolution 242. This section will be revised to ensure all applicable EII's are referenced.	
	250. Page 4, Sect. 2.2.4, P. 1: This paragraph describes the equipment that will be used in collecting the vadose zone materials within the cribs. In the Work Plan, the sampling description mentioned stainless steel liners used		250. Reject. Stainless steel liners were not discussed in Task 2 of the work plan. Samples will be extracted directly from the inner	

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	in the core tubes. This is not mentioned here. **HAZWRAP**		core barrel of the dual-wall as described. Stainless steel liners will be used in Task 4 when the dual-wall technique is not being used.	
	251. Page 5, Figure 2-1: Remove A, A' cross-section line. **IT**		251. Accept. The A, A' cross-section has been removed from Figure 2-1.	
	252. Page 6, Figure 2-2: See figure 5-2 (Vol. 1). **IT**		252. Comment is not clear. These figures are the same and are used in both locations.	
	253. Page 7, Section 2.2.4, P. 1: It specifies in the first sentence that the borings will be capped and sealed with the outer wall remaining in place, but it does not specify how this will be accomplished. A methodology or a reference is needed. **HAZWRAP**		253. Accept. Capping and sealing of the outer wall will be done by welding a stainless steel cap on the casing in accordance with the construction specification developed for these wells (EII 6.3). This procedure will be referenced in the text.	
	254. Page 7, P. 2: It is unclear whether the hole is cased or not. Geophysical logging is more definitive if the holes are uncased. **IT**		254. Accept in part. Sentence has been clarified to indicate the boreholes will be geophysically logged prior to pulling the casing and abandoning the holes. The second part of the comment is acknowledged. However, it is not possible to maintain an open hole for geophysical logging in unconsolidated formations without	

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			casing.	
	255. Page 8, 2.3.1, line 2: Change Several to "Three". IT		255. Accept. Suggested change has been made.	
	256. Page 8, Section 2.2.6, P. 3: First, volatile organic samples (i.e., all "GS" samples) should not be composited. Second, if volatile organic samples are to be collected, they should be collected using liners. The liner itself should be sealed and sent to the Contract Laboratory Program laboratory for analysis. HAZWRAP		256. Accept. Volatile organic samples can be composited in a defensible manner by compositing the extractions from individual samples (not compositing samples). During review of the time increment to drill the proposed three borings through each crib, it became apparent that sufficient time may not be available to complete the analysis for volatile organics (maximum 14 days) if extracts are to be composited. The Work Plan will be revised to include volatile organic analysis on individual samples.	
	257. Page 9, Table 2-2: Define what "o" means. Change the location of this table (2-2) and place after Figure 2-3, as per text location. IT		257. Accept. The bullet "o" is used to indicate the analysis will be conducted on the sample indicated. The table has been placed after Figure 2-3.	
	258. Page 13, Section 2.3.3: What kind of grid is to be used? Five foot centers, 10 foot centers? How many soil samples with elevated radiation levels from each anomaly (The two highest, the five highest)? IT		258. The surface radiation survey will be performed by passing tractor mounted radiation detection equipment over the site giving virtually 100% coverage of the	

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			surveyed area. At most, two soil samples will be taken from each anomaly, one for the highest beta/gamma reading and one for the highest alpha reading. If these two highest readings coincide a single sample will be taken.	
	259. Page 13, 2.3.3, line 2 and 2nd paragraph line 3 and 5: Area should be reserved for the DOE titles for the 200 Area, 600 Area, etc.. IT		259. Accept. Sentences have been changed to eliminate confusion.	
	260. Page 13, Section 2.3.4: Radiation Land Survey, how will this survey be conducted? IT		260. These survey's are performed by trained Radiation Protection Technologists in accordance with standard operating procedures and instructions for the specific equipment utilized. See comment resolution 242 for the referencing of WHC controlled procedures.	
	261. Page 15, Underground Distribution System Leak Detection: Again, procedures need to be developed to implement this task, how is this to be accomplished? Who reviews, who approves it, etc.? IT		261. Procedures that are required to be developed as a specific activity within RI tasks will be developed by WHC or a subcontractor and will be provided to DOE and the regulators for review prior to use. It is not required to have all procedures that might be used during an entire RI/FS finalized prior to approval of the work plan.	

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	262. Page 15, paragraph 4, line 3: Make 2 to 2.5 meters (6 to 8 feet) the same through this paragraph and paragraph 5, line 1, paragraph 5 lines 1 and 4. IT		262. Accept. Corrected.	
	263. Page 16, Soil Sampling: Again, WHC EII 5.2 needs to be incorporated into the work plan. IT		263. Reject. See comment resolution 242.	
	264. Page 16, Geodetic Control: Define what "third order" precision and accuracy is. IT		264. Reject. "Third Order" precision and accuracy is a term commonly used and understood by surveyors. It is a defined level of accuracy used in topographic mapping.	
	265. Page 16, Section 2.3.6 Sample Handling and Analysis: The definition of significant radiation is not a judgment call to be made on site by the RPT. It should be a predetermined level agreed upon by all parties, i.e. DOE, state and EPA reps. IT		265. Accepted in part. Radiological Screening is conducted by trained Radiological Protection Technologists (RPTs) using established procedures and protocols. The training, procedures and protocols have evolved over the years as a result of extensive experience gained at Hanford in dealing with radioactive contamination. Action levels are established based on the requirements in WHC Environmental Protection, Radiological Protection, and Operational Health	

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			Physics manuals and will be specified in Pre_Job Safety Plans. However, because of the training and experience of the RPT, the RPT has the authority to stop work or direct alternate actions if he/she feels the radiological conditions are not being adequately controlled by the radiological protection being used. When dealing with radioactive exposures, the use of the ALARA concept also may dictate when alternate actions are necessary. The text will be modified to more clearly describe the role of the RPT.	
	266. Page 16, P. 5: Significant radiation is not defined. There needs to be an action level specified so that the drilling and sampling crews know when to take the appropriate action. IT		266. Accept. See comment resolution 265.	
	267. Page 16, Section 2.3.6, 1st. paragraph, line 6: Try ....., "scanned for alpha, beta, and gamma and placed in labeled containers. IT		267. Accept. Sentence has been modified as suggested.	
	268. Page 16, Sec. 2.3.6: The frequency of travel method blanks and procedural blanks is stated as percents of other samples. Normally, these blanks are based on sampling event characteristics and the need for travel blanks to accompany groups of samples. HAZWRAP		268. Accept. The frequency of quality control samples are normally expressed as a percentage. The percentage will be described as a minimum with additional samples obtained as warranted based on sampling events and circumstances.	

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	269. Page 17, Section 2.4.1, (3), (3): Is lixiviants a trademark or registered name? If so add the proper symbol. IT		269. Reject. The definition of lixiviate in Websters New College Dictionary is, "to extract a soluble constituent from (a solid mixture) by washing or percolation".	
	270. Page 17, Section 2.4.3, first line: Try -- Existing boreholes constructed during Task 2, which were drilled through ..... 216-B-57 will be deepened ..... IT		270. Accept. Statement has been modified.	
	271. Page 17, Section 2.4.3: Requirements of WAC 173-160 need to be spelled out. IT		271. Reject. The requirements of WAC 173-160 do not need to be spelled out. The statement referring to this WAC is only intended to indicate that state well drilling laws will be complied with. Specific procedures will be described in WHC EIIs.	
	272. Page 18, 1st paragraph, line 5: .....interval in each boring, unless a stratigraphic change is noted by the driller or geologist, at which time additional samples will be collected. IT		272. Accept. Statement has been modified as suggested.	
	273. Page 18, Section 2.4.4: Referenced WHC documents need to be incorporated into the Work Plan. IT		273. Reject. See comment resolution 242.	

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	274. Page 19, Section 2.4.6: What classification system is being used to log the geologic materials? IT		274. The Modified Folk system is used to log the geologic material in accordance with EII 9.1 (Geologic Logging).	
	275. Page 19, Section 2.4.7: Who's doing the geodetic survey and how? IT		275. Kaiser Engineering. In accordance with their standard operating procedures as specified in the procurement documents (and statements of work) used to obtain the service. Control of subcontractors and subcontractor procedures is discussed in the Quality Assurance Project Plan.	
	276. Page 20, Section 2.4.8: Define the abandonment requirements of Chapter 173-160 WAC. IT		276. Accept. The well abandonment procedures have been defined.	
	277. Page 20, P. 3: General Comment. The usefulness of the seismic survey will be determined at the 200 BP-1 area for use at subsequent sites. Using this technique to define paleotopography underlying 50 ft of sands and gravels at Rocky Mtn Arsenal proved to be useless. The geophysical lows were either highs or lows when drilled. IT		277. Acknowledged. See response 139 and 167.	
	278. Page 21, Section 2.5.3: If the single shell tanks in the 241-BY Tank Farm are so fragile so as to the raise a concern during the seismic survey, maybe an Interim Response Action ought to be considered to alleviate the		278. Reject. The discussion in the text is presented to indicate that an evaluation would be performed to determine whether or not the	

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	possibility of rupture. IT		seismic sources could impact the integrity of the nearby single shell tanks. There are no single shell tanks located within this operable unit and as such interim response actions in this work plan is not appropriate. In addition, the disposal of single shell tank waste and structures is currently under the direction of the Final EIS - Disposal of Hanford Defense High-Level, Transuranic, and Tank Waste, Volume 1 through 5, DOE/EIS-0113.	
	279. Page 21, Section 2.5.3: It appears that no seismic work will be done at or around the 200-BP-1 operable unit. IT		279. The seismic work is proposed in the area indicated on Figure 2-5. The purpose of the seismic work is to define the surface of the basalt in critical areas where we have limited information (i.e. north and downgradient of the operable unit). Within the operable unit this information is already available from the numerous wells that have been installed.	
	280. Page 21, Section 2.6.1, 3): change "onto" to "into" and change "in" to "via". IT		280. Accept. Sentence has been changed as suggested.	
	281. Page 23, Section 2.6.3, line 7: Add .... intervals "or major stratigraphic change"..... IT		281. Accept. Sentence has been changed as suggested.	

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	282. Page 23, Sec. 2.6.4: Have other techniques been ruled out? Top drive air rotary might prove to be much faster and more economical? IT		282. Acknowledged. See response 173.	
	283. Page 27, P. 1: Are you in truth going to drill through the entire basalt sequence? IT		283. It is not clear what is meant by this comment. For wells monitoring the confined aquifer, the borings will be drilled through the Elephant Mountain Basalt (with proper precautions to seal the unconfined aquifer) to the Rattlesnake Ridge Aquifer.	
	284. Page 27, P. 2: No method discussed for obtaining basalt samples. IT		284. Accept. We have indicated that basalt samples will be obtained from drill cuttings for geologic interpretation.	
	285. Page 27, Sec. 2.6.9 P. 4: If you are not going to size the screen slot size until the formation grain size is determined, then the filter pack gradation should not be determined until that time. HAZWRAP		285. Accept. The filter pack around the well screen will be sized based on the formation grain size. The FSP will express this in the text.	
	286. Page 27, P. 4, line 8: Add--"One meter of Bentonite pellets and then" the remainder..... IT		286. Accept. Sentence has been modified as suggested.	
	287. Page 27, P. 4: Screen slot size will depend on formation grain size. Will grain size analyses be done in		287. Accept in part. The filter pack material will be graded based	

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	the field on all drive samples? If so, is there a procedure that can be referenced? Filter pack material should be graded to account for formation grain size as well as screen slot size. The bentonite/grout mixture ratios are not discussed anywhere in this document. The well installation procedure does not mention the holding times (periods of time to allow the grout mixture to adequately set up before the next phase of well completion) that will need to be followed after grout placement. The procedure does not mention how the grout and filter pack material will be placed (gravity or tremie method). It is not clear that additional grout will be added to the borehole as the drive casing is removed to assure a good seal. **IT,HAZWRAP**		on the formation grain size. Bentonite/grout mixture ratios, grout mixture set-up time and installation procedures for grout mixtures will be specified in the Technical Procedures that address well construction details.	
	288. Page 27, 5th paragraph: remove 1st sentence or remove in paragraph 4, line 11, remove same sentence. **IT,HAZWRAP**		288. Accept. First sentence in paragraph 5 has been deleted.	
	289. Page 27, Section 2.6.4: Incorporate referenced documents. Why only bailing for well development, has surge block been considered? You state, "...purged water will be captured and properly disposed of, depending on its quality." What are the proper disposal methods and what are the levels which would require these disposal methods? If the quality is okay, how will the purged water be handled?		289. Accept in part. See response 192 and 242.	

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	IT 290. Page 27, P. 5: First sentence of paragraph is repeated from the previous paragraph. Details on well development should be provided such as how it will be done and criteria for determining when development is sufficient. Has any thought been given to sampling the bottom of the aquifer in some wells to assess the possibility of "sinkers". IT		290. Accept in part. See response 288 and 242. Details on well development procedures are provided in the WHC procedure referred to. No DNAPL compounds or "sinkers" have been identified at this operable unit. However, many of the wells in the unconfined aquifer will be screened throughout the entire saturated zone (which is only 5 feet thick in the vicinity of the operable unit), which will allow for monitoring of "sinkers".	
	291. Page 27, Section 2.7.4: RODs are approved, not established. IT		291. Accept. Sentence has been modified as suggested.	
	292. Figure 2-8: Nominal 6-inch support steel casing is a redundant feature. The pump will be supported by a sell seal in the 4-inch or by anchoring to the 10-inch protective steel casing. IT		292. Reject. Refer to the response provided to comment number 180.	
	293. Figure 2-8 mentions a grout seal at the bottom of the screen location upon which the screen will be set. This is not discussed in this paragraph. **HAZWRAP**		293. Accept. We have included a discussion of the grout seal in the paragraph that describes well construction.	

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	294. Page 29, P. 4: All sample material will be placed in jars. IT		294. Accept. Sentence has been modified as suggested.	
	295. Page 29, 2.6.5, line 3: change "10,000" to "1,000". Also define the "600 "Area". IT		295. Accept in part. "10,000" has been changed to "1,000". A definition of the 600 Area has been provided in the work plan in Section 2.1.5 (see comment 45).	
	296. Page 29: Last sentence on the page should read: Two wells were chosen for better representation of background levels. IT		296. Accept. Sentence has been modified as suggested.	
	297. Page 30, Section 2.7.1: The RI/FS will not begin until 1989! IT		297. It is not clear what is meant by this comment. Yes, the RI/FS will begin in 1989.	
	298. Page 30, Section 2.7.2 Item 2: Field tests should be conducted on the wells to ascertain acceptability for monitoring. IT		298. Accept. Item 2 has been modified to include field tests.	
	299. Page 30, Sec. 2.7, General: Over 3 pages are devoted to development of Level V SAS methods and nothing is mentioned about how existing wells will be examined/evaluated to determine if they are acceptable for continued monitoring. A section should be added specifically explaining how these existing wells will be inspected and how an evaluation will be made as to their acceptability. IT		299. Accept. A section has been added to describe the evaluation of existing wells. See response 168.	

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	300. Page 31, P. 2: General Comment. Most of the RI/FS presentation does not have a lot of details until this discussion on cyanides. This discussion, in such detail, appears to be a red flag. Other important items are not addressed as well as the cyanide issue. IT		300. Acknowledged. The discussion of cyanide is included because it is a primary contaminant of interest for the risk assessment, and it is critical that the chemical form of the cyanide or cyanide complexes be determined.	
	301. Page 31, 3rd paragraph, 1st line: Fix equations by subscripting the 6 and superscript the minus three, three minus signs would be best. IT		301. Accept. The equation has been corrected.	
	302. Page 31, 4th paragraph: Would like to see the formula for the breakdown by biodegradation of cyanide. IT		302. Reject. Commenter should check in the document cited if interested in the formula for biodegradation of cyanide.	
	303. Page 33, 3rd paragraph, line 5: add ....Cobalt "and Iron" complexes..... IT		303. Accept. Sentence has been modified as suggested.	

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	304. Page 34, Section 2.7.4.2: Shouldn't turbidity be measured during purging also? IT		304. Accept. Turbidity will be included as a parameter to measure during purging.	
	305. Page 34 Title of Section 2.7.4.4.: Change "Sampling" to "Sample". IT		305. Accept. The title has been changed as suggested.	
	306. Page 34, Section 2.7.4.4, line 8: Start sentence "Samples will be collected as per WHC _____ procedure manual and sent..... IT		306. Reject. Sample procedures are covered by the first sentence of Section 2.7.4.2.	
	307. Page 34, Sec 2.7.4.4: The text should state that wells will be sampled in order, beginning with the least contaminated and ending with the most contaminated in order to reduce the likelihood of cross-contamination. NUS		307. Reject. All wells will have dedicated pumps. Thus, the sampling order suggested is not needed.	
	308. Page 34: You left out a description of the construction detail review of existing wells, activity. What criteria will be used to evaluate wells? IT		308. Accept. See response 299.	

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	309. Page 36, P. 1: Should add sulfates and nitrates to complete the major inorganic salt analyses. Sulfates are presented in Table 3-1 and nitrate data is presented in Appendix D. IT		309. Accept. Sulfates and nitrates have been added.	
	310. Page 36, Sec. 2.7.4.4, first full paragraph: (relating to samples containers) is confusing and perhaps contradictory. HAZWRAP		310. Reject. Comment is unclear. Table 4-1 in the QAPP contains the information indicated in this paragraph.	
	311. Sec. 2.8.3: It is recommended that the heading be changed to "Requirements for Surveys and Maps" from "Precision Accuracy for Surveys and Maps." HAZWRAP		311. Accept. The heading for this section has been modified as suggested.	
	312. Page 37, Section 2.8.4: Procedures provided by contractors and subcontractors have to be approved and incorporated into the SAP. IT		312. Reject. As discussed in the Quality Assurance Project Plan all subcontractor procedures will be approved and maintained as part of the project files. See comment 242 regarding the actual incorporation of procedures into the Work Plan.	
	313. Page 38, Section 2.8.5: Indelible pens should be		313. Acknowledged. This type of	

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	used for field notes. IT		information is provided in WHC procedure EII 1.5 Field Logbooks.	
	314. Page 38, Section 2.9: What about deer? IT		314. Reject. See response 122.	
	315. Page 41, Section 2.11.2: Groundwater from pump test must be discharged well outside the zone of influence of the test. IT		315. Acknowledged. Groundwater from the pump test will be discharged well outside the zone of influence of the test.	
	316. Page 42: Shouldn't the water quality assessment of the well be done prior to test planning? IT		316. It is not clear what this comment is referring to. The last sentence of Section 2.11.2 indicates that current water quality data will be evaluated and a determination made as to the type of hydraulic test which is appropriate for the well. This sentence will be clarified to indicate that this evaluation will be conducted prior to testing.	
	317. Page 42, Section 2.11.4: One half hour of water level monitoring prior to the slug test may not be		317. Reject. See response 203.	

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	adequate to determine any antecedent trends. One full day of monitoring prior to the slug test is recommended. IT			
	318. Page 43, P. 2: Sampling pumps are to be removed by a Smeal rig. A Smeal rig is a well service rig manufactured by the Smeal Company. This sentence should be rewritten to say that the sampling pumps will be removed by a "well service rig" or pulling unit in lieu of a Smeal Rig. IT,RL		318. Accept. Sentence has been modified as suggested.	
	319. Page 43, Section 2.11.4: Again, it is recommended that prior to commencement of the drawdown/recovery test that water levels be monitored for a minimum of 1 week. WHC EII 10.1 and 10.2 need to be incorporated into the work plan. IT		319. Reject. See response 206.	
	320. Page 44, Section 2.12.2: It is recommended that sorption test be performed on undisturbed samples to obtain more representative values of actual subsurface conditions. IT		320. Reject. See response 208.	
	321. Page 44, 2.12.2, list of wells: Well E33-33 is a confined well. IT		321. Acknowledged. Well E33-33 will be installed in the confined aquifer. However, samples will be	

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			obtained from the unconfined aquifer during drilling.	
	322. Page 44, last paragraph: How about also measuring changes in pH, hydraulic conductivity, and perhaps temperature. IT		322. Accept in part. We have included pH. Hydraulic conductivity and temperature are not appropriate analyses to conduct during the sorption test. Information on hydraulic conductivity will be obtained from the aquifer tests. The sorption test will be conducted in a laboratory, presumably at room temperature.	
	323.Section 3.0, General: Is the detailed procedure for decontamination applicable to all decons, including rigs and tools? If not, what is the procedure for deconing rigs? IT		323.Accept. A reference to EII 5.4 - Field Decontamination of Drilling Equipment has been included in this section.	
	324.Page 45, Sec. 2.13, Baseline Risk Assessment: The treatment of this complex task is very weak. No guidance		324.Reject. The Baseline Risk Assessment is discussed in the work	

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	or requirements are referenced. **HAZWRAP**		plan. It is an evaluation of data collected in other tasks. As such, it is not appropriate to include a detailed discussion of it in the Field Sampling Plan.	
	325.Sec. 2.14, Evaluation and Report: The treatment of this complex task is very weak. No guidance or requirements are referenced. **HAZWRAP**		325. Reject. Evaluation and Report is discussed as Task 14 of the work plan. See response 324.	
	326. Page 47, P. 4: Rinse water should only be used once, especially the final rinse. All rinses should be spray rinses. **IT**		326. Accept. Rinses are only used once. Bullet two has been modified to indicate it is a spray rinse.	
	327. Page 47, Section 3.0: How will the "deconned" sampling equipment be stored to prevent further contamination? EII 5.5 needs to be incorporated into the work plan. Any "additional radiological decontamination procedures" need to be specified and incorporated into the work plan. **IT**		327. Reject. The EII contains the information indicated in this comment. See also response 242.	

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	328. Page 48, Section 4: All the WHC EII documents cited are missing from the references, as are Jones, 1978, Gee and Heller, 1985 and Gee, 1987. IT		328. Accept in part. See response 242. Other missing references have been included.	
	329. The word "all" is used extensively in the QA Plan section. Suggest that the word be deleted since there will probably be some exceptions. RL		Quality Assurance Project Plan. 329. Accept in part. The text will be screened for unnecessary usage of the word "all." However, use of the word "all" is appropriate in situations in which control of an activity is a necessary aspect of the QAPP. For example, certain field and laboratory activities must be performed in compliance with known and approved procedures in order to ensure comparable and consistent data is obtained for all like activities. In such cases, all nonconformances or deviations from established procedures must be documented in order that the effect on the data can be evaluated.	

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	330. The verification, validation, and control of computer codes does not appear to be adequately addressed. Appendix I which addresses available codes uses the words "should" and not "shall" or "will". RL		330. Accepted in part. Westinghouse Hanford Company policies and procedures regarding software control will be followed in all computer modeling. The text will be modified to reflect this and Appendix I will also be modified as suggested. However, full scale validation of all codes can be very expensive and time consuming. Hence, trade-offs exist between defensibility of the codes and cost and time constraints. In accordance with good engineering practice, all codes will be tested to a level commensurate with their intended use and the quality of the input data.	
	331. The QA Plan section addresses the "Environmental QA Program Plan" (WHC-EP-215) which is in preparation. Based on a limited understanding of WHC-EP-215, it does not appear that RL-88-32 implements the requirement of DOE orders, including RL 5700.1A & 2A. Impact levels of RI/FS work are not included. Training and qualification of personnel do not appear to be addressed.		331. It is the intent of WHC to comply with the requirements of all DOE Orders in conducting the RI/FS for the 200-BP-1 Operable Unit. To satisfy all the requirements of DOE-RL 5700.1A and 2A a number of plans have been prepared or are in	

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	RL		preparation. These include: • The Quality Assurance Project Plan, the Project Management Plan, and the Data Management for the 200-BP-1 Operable Unit RI/FS. These plans are attachments to the work plan and are specific to the 200-BP-1 RI/FS. • The WHC Quality Assurance Program Plan for CERCLA RI/FS Activities (in preparation). This plan describes the relationship between EPA and DOE (NQA-1) requirements and specifies the implementing procedures for these requirements. • The WHC Environmental Division Environmental Assurance/Quality Assurance Program Plan (in preparation). This plan provides the basis for the Quality Assurance Program for all environmental activities undertaken within the WHC Environmental Division (including CERCLA RI/FS activities). • Various programmatic plans, including the Tri-Party Agreement Action Plan, the Environmental Restoration Field Office Work Plan, and the Environmental Restoration Field Office Long-Range Plan.	

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			Impact levels for the remedial investigation work being proposed by this document are specified in the Environmental Investigation Instruction. Training and qualification of personnel is specified in EII 1.7, "Indoctrination, Training, and Qualification" as required by the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities. Where necessary to illuminate these points the text has been modified.	
	332. The document does not appear to address any precautions to be taken to assure that drilling, pumping and sampling in one area of interest does not contaminate or affect the ability to characterize other areas. RL		332. Reject. Decontamination of equipment is discussed in Section 3.0 of the Field Sampling Plan.	
	333. Recommend the addition of a document hierarchy that reflects documents that the RI/FS was prepared to satisfy and the lower level of implementing documents. What is the relationship or applicability of the "Federal Facility Agreement and Consent Decree", the "Action Plan", RI/FS guidance documents, DOE Orders, WHC and other contractor NQA-1 QA Programs, etc. In addition, a listing of project requirements is suggested (e.g. specific elements the project is committed to). RL		333. Reject. A listing of all Environmental Restoration Programmatic and other ancillary documents is not within the scope of an RI/FS Work Plan. Where necessary for describing the RI/FS process and the proposed work in the 200-BP-1 Operable Unit, these documents are cited. However, detailed discussions of these	

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			documents and their relationships can be found in the Environmental Restoration Field Office Work Plan, the Environmental Restoration Field Office Management Plan, and other programmatic level documents. Detailed project specific requirements are contained throughout the Quality Assurance Project Plan and the rest of the work plan as well as in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities (under preparation).	
	334. Recommend the development of a matrix that identifies requirements, where in the RI/FS the requirements are satisfied, and what procedures implement the requirements. RL		334. Accepted in Part. The development of a matrix that relates the quality requirements imposed by NQA-1 and to those imposed by EPA is currently under preparation for inclusion in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities. This matrix also specifies the implementing procedures required to satisfy each of these requirements. See comment resolution 242 for control and review of the Quality Assurance Program Plan for CERCLA RI/FS Activities.	

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	335. Recommend that the approval of the QA Plan be limited to one individual who is responsible for the document. If the list on the cover is necessary all but one should be reviewing and concurring. RL		335. Reject. The recommendations for QAPP approval personnel are consistent with the guidelines of section B.3, page B-10 of OSWER directive 9335.3-01, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (EPA, March 1988 draft). The approval blank for the WHC EE&T Function Manager will be deleted, but no further revision is recommended. It should be noted that the guidance document specifically emphasizes approval, and does not use the term "concurrence."	
	336. General: References to various 1988 EPA documents as 1988a, 1988b, etc. are not consistent throughout the text and are not indicated in a similar fashion in Appendix B, References. IT		336. Accept. Corrected.	
	337. General: This document makes extensive reference to other documents (e.g., WHC-EP-0215, WHC-CM-7-7, etc.) The overall adequacy of the QAPP for this project is not readily assessed without review of these referenced documents. IT		337. Reject. See comment resolution 242.	

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	338. General: The QAPP would be improved if it addressed the handling of all QA records, including the control, access, storage and overall management of these records. **NUS**		338. Reject. The handling of all records, including quality assurance records, is provided in the Data Management Plan (Attachment 4). The Data Management Plan discusses the control, access, storage and overall management of records generated during RI/FS.	
	339. Table of Contents: The plan specifies control in accordance with a WHC document, WHC-EP-0215, "Environmental Quality Assurance Plan," which is not completed or available. The plan cannot be effectively commented upon without this critical document. The procedures invoked should be available for a complete review of the project. **HAZWRAP**		339. Reject. See comment resolution 242.	
	340. The QAPP should briefly discuss all referenced aspects of WHC-EP-0215 and WHC-cm-4-2, or else copies of the appropriate sections of these procedures should be included as an attachment to the work plan. **NUS**		340. Accepted in part. The QAPP will be expanded to more fully discuss the WHC Quality Assurance Manual and the Quality Assurance Program Plan for CERCLA RI/FS Activities and how they relate to the control of work outlined in this Work Plan. However, as discussed in comment resolution 242, these documents or sections of	

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			these documents will not be included in the Work Plan.	
	341. The date the document is expected to be issued should be indicated. **HAZWRAP**		341. Accept. The proposed issue date for the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities will be included in the text if necessary. Based on the current schedule, this document should be issued by the time the next version of this Work Plan is promulgated for review.	
	342. The programmatic requirements for control of field activities are addressed; however, how certain controls will be accomplished cannot be commented upon without the applicable procedure(s). **HAZWRAP**		342. Reject. See comment resolution 242.	
	343. General: The QA plan should give some guidance regarding classifying project documents as QA records. It is not clear how records will be classified except as primary and secondary as specified in the project management plan. For example, will the summary report specified in Sect. 12.0 be specified as a QA record? **HAZWRAP**		343. Accept. The QAPP and DMP will be modified to define all primary documents to be "quality records". These records will be controlled in accordance with the requirements in the WHC Quality Assurance Manual (WHC-CM-4-2) and the Data Management Plan.	

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	344. Page 1, Sec. 1.1, sent. 3: should read "volatile and non-volatile organic contaminants..." IT		344. Accept. Sentence has been modified as suggested.	
	345. Reject. Page 1, Sec, 1.3: It is suggested that the purpose of the QAPP be expanded to indicate that it establishes the control requirements for the project to ensure quality of the data. The QA plan should also include the DOE control requirements (NQA-1) considered applicable to controlling the project management of the project. For example, test control is not indicated in the QA plan as a control element; however, tests are called out in the sampling plan (pp. 31 and 39). **HAZWRAP**		345. The scope of the QAPP is defined in the March 1988 EPA Guidance Document (OSWER Directive 9355.3-01). Specific project management requirements are covered in the Project Management Plan (Attachment 5). Details relating the DOE control requirements (NQA-1) to the EPA control requirements will be included in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities as discussed in comment resolutions 334 and 242. Test control requirements are specified in the individual implementing procedures (EII's).	
	346. Page 1, Section 1.4: Need to provide procedure for update and modifications to include: 1. Schedule within context of tasks for review and update/modification		346. Reject. Requirements for the update and modification of the work plan are provided in the Project	

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	2. Flow chart for reviewers or list of appropriate reviewers 3. Nomenclature for revisions, (e.g., each revision is numbered sequentially or only reviews that change the QAPP are numbered). IT		Management Plan (Attachment 5). The Project Management Plan indicates when DOE and the regulators review and approval are necessary based on the Tri-Party Agreement Action Plan. Internal WHC reviewers are specified in WHC Desk Instructions. THe WHC Technical Editing Style Guide (WHC-I-0003) will provide the basis for numbering the revisions to the document. A revision to any part of the Work Plan or attached project plans will be considered a new revision number even if the rest of the document remains unchanged.	
	347. Page 2, under QAP, Figure 1-1: Needs legend. Also high light the 200-BP-1 Operable Unit so it can be distinguished from the others. IT		347. Accept. Figure 1-1 has been modified as suggested.	
	348. Page 2, Sec. 1.3: "Current U.S. EPA guidance" should be defined. HAZWRAP		348. Accept. We assume this comment is referring to Section 1.3 of the Introduction to the SAP. The EPA guidance has been referenced.	

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	349. Page 3, Sec. 1.4, Task 7: This task indicates that redox potential will be determined. Requirements for these determinations should be include on Tables 4-1 and 7-1. IT		349. Reject. The methods for obtaining a valid measurement of redox potential will be tested. If redox potential cannot be determined readily in the field, only selected samples will be tested for redox in a laboratory.	
	350. Page 3, Sec. 1.4, Task 9: If biota evaluations are to be made, then biotic survey procedures should be discussed in Sec. 4.0. IT		350. Accept. EII 5.3 "Biotic Sampling" will be utilized and will be referred to in both the QAPP and the FSP.	
	351. Page 3, Task 1: The elements necessary to ensure control of the project are not invoked in the plan. DOE invoked control elements (NQA-1) such as procurement control, shipping and handling, test control, document control, and auditing (project management) to name a few which appear to be applicable. The plan seems to be addressing only the work to be controlled in the field and at the laboratories. HAZWRAP		351. Reject. The Project Management Plan (Attachment 5), the Data Management Plan (Attachment 4), and the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities provide the additional elements necessary to ensure control of the project. Items such as procurement control, shipping and handling, test control, document control, and auditing are covered in these plans and are based on the standard practices established by WHC for the conduct of work on the Hanford site in accordance with NQA-1 criteria.	

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	352. Page 3, Section 1.4: Selected tasks indicate work to be performed by "qualified" personnel--qualified needs definition for each discipline referred to, i.e., what determines qualified? IT		352. Accept. The definition of "qualified personnel" is provided in EII 1.7, "Indoctrination, Training, and Qualification." This EII will be referred to in the text where appropriate.	
	353. Page 4, Section 1.4: Task 13, Baseline Risk Assessment is not detailed, nor are there performance criteria. IT		353. Reject. The details of the Baseline Risk Assessment are provide in Section 5.1.13 of the work plan.	
	354. Reject. Page 4, Sec. 2.1: It is not clear whether or not the quality-related personnel are defined in the referenced documents. If this is done in the Project Management Plan, it should be clearly stated as such. EPA QAMS-005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," requires identification of key individuals responsible for ensuring data quality. IT		354. Accept. Already covered in the Project Management Plan (Attachment 5).	

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	355. Page 4, Sec. 2.1: The responsible WHC project element should be specified for approving all laboratory plans and analytical procedures. Specific information must be provided. **HAZWRAP**		355. Accept. The text has been modified to indicate the WHC Analytic Laboratories organization is responsible for preparing and approving all laboratory plans and analytical procedures.	
	356. Page 4, Section 2.1: Organizational chart for major elements should be included. Description of positions and responsibilities should be included. (Technical lead is often referred to, but their responsibilities, authorities, and organizational position is not known). **IT**		356. Reject. As indicated in this section, the organizational chart, and description of responsibilities is included in the Project Management Plan.	
	357. Page 4, Sec. 2.2: Radioactive screening needs to be detailed as to the type of instrument and radioactive particle. **IT**		357. Accepted in part. Screening is conducted for gross beta/gamma and alpha radioactivity. The types of instruments to be used are specified in the specific procedures called out in the Field Sampling Plan.	
	358. Page 5, Sec. 3.0: This section should describe objectives for representativeness and comparability in addition to the other data quality objectives discussed, as required by QAMS-005/80. **IT**		358. Accept. Discussions of representativeness and comparability will be added to Section 3.0.	

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	359. Page 5, Sec. 3.0: Nonconformance should be defined in Appendix A, Glossary. Data quality objectives should be included in the QAPP in Table 7-1. If referenced, then they should be in the appendix. IT		359. Accept in part. "Nonconformance" will be defined and included in the Glossary. Data quality objectives relative to precision, accuracy, representitiveness, completeness and comparability must be established as part of the mutually agreed upon statement of work in procurement agreements to subcontracted laboratories, or in work orders written to WHC laboratories or other Hanford participant contractor laboratories. Table 7-1 was developed as guidance to be used in the negotiation of acceptable objectives; MDL and MCL values were derived from EPA methods or from typically acceptable values from CLP laboratory statements of work. The guidance values that have been provided are generally appropriate for the purposes of this investigation. Table 7-1 will be expanded to include guidelines for developing method-specific objectives for precision and accuracy, as available for individual analytical methods. Once the actual laboratories and procedures to be used have been identified and approved, Table 7-1	

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			can be revised to reference the actual negotiated values as firm requirements. Sections 3.0 and 7.0 will be revised for clarity, and will restate the general requirements for completeness and comparability.	
	360. Page 5, Sec. 3.0, P. 2,3: Should refer to Table 7-1, not Figure 7-1. IT		360. Accept. Corrected.	
	361. Page 5, Sec. 3.0, P. 3: This paragraph states that precision and accuracy requirements of the EPA test methods used for analyses will be considered minimum requirements for this project. EPA methods cited are in SW-846. These methods do not contain precision/accuracy limits per se, rather the results of single laboratory analyses are presented for information. Generally these results would not be obtainable on a routine basis under conditions of varying analyte concentrations between samples. Other requirements for precision and accuracy should be cited. CLP Statement of Work documents and 40CFR136 may be referenced for guidance. IT		361. Accept. Sections 3.0, 7.0, and Table 7-1 will be revised for clarity. See response (359) above.	
	362. Page 6, Sec. 4.1, General: It is difficult to see how procedure control will work with so many different controls. Why can't all procedures be collected into one		362. Reject. See comment resolution 242.	

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	place for this effort? IT			
	363. Page 6, Sec. 4.1: Reference WHC-CM-7-7 does not agree with citation in Appendix B. IT		363. Accept. The reference will be removed. Numerical designators for WHC-CM-7-7 and all of the EIIs that are contained within it will be removed from the text in compliance with DOE Order 1430.2A. See comment resolution 242.	
	364. Page 6, Sec. 4.2: This section does not specifically address requirements for documentation related to sample collection and testing. The types of documentation required and the means for recording necessary data/information should be described or referenced as indicated in QAMS-005/80 and OSWER 9355.3-01. IT		364. Accept. All documentation requirements are addressed within individual Environmental Investigations Instructions (EIIs) or shall be required for inclusion in approved subcontractor or participant contractor procedures as discussed in Section 4.1. Section 4.1 will be expanded for clarification purposes. Documentation requirements are also addressed in the Data Management Plan (DMP), which will be referenced in Section 4.1.	
	365. Page 6, Sec. 4.2.1, General: In is not possible to evaluate whether procedures for soil sampling are adequate		365. Reject. See comment resolution 242. The EII's are rigorously reviewed and controlled	

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	when they are no part of the plan. Referring to "Instructions" as controlling documents leaves the reviewer with no sense of comfort. Are the "Instructions" rigorously reviewed, controlled, etc.? Why not use "Procedures"? IT		in the same manner as "procedures".	
	366. Page 6, Sec. 4.2.2, General: How can groundwater sampling procedures simply be deferred to a subcontractor? Some guidance must be provided in this Work Plan. This comment applies to Sec. 4.3.1 through 4.3.5. IT		366. Accept in part. All subcontractor procedures will be approved and controlled in accordance with the Quality Assurance Project Plan. The PNL procedures utilized for ground water sampling will be more completely discussed.	
	367. Page 6, Sec. 4.2.3: "Container codes" needs definition. IT		367. Accept. Container codes are required to differentiate between like sample containers that have been prepared for different types of samples. The code becomes part of the identification requirements for each sample as defined by the Field Sampling Plan. "Container codes" will be revised to read "container preparation codes" to coincide with the column heading on Table 4-1.	

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	368. Pages 7-9, Table 4-1: Title--insert "Preservatives" and "Maximum Holding Time", define "Container Preparation Code", footnote acronyms or abbreviations, e.g., R, CPM, Radionuclide CPM and disintegrations/minute is not consistent with units (millirems/hour) in screening as noted in Section 2.2. IT		368. Table 4-1 will be deleted; the information contained by the table will appear in EIIs for soil and sediment sampling, and in approved participant contractor or subcontractor procedures for water sampling.	
	369. Page 8, Table 4-1: This table should indicate that metals are exclusive of hexavalent chromium. In addition, cooling to 4° C is not required for metals prior to analysis (see 40CFR136). IT		369. Accept in part. Hexavalent chromium is not a parameter of interest at this site. Thus, there is no need to make the change suggested. Cooling to 4° C has been deleted for metals.	
	370. Pages 6, 10 and 11, Sec. 4.0, General Comment: Sampling and/or investigative procedures in Sections 4.2.1, 4.2.2, 4.2.3, 4.3.4, 4.3.6, 4.3.7, 4.3.8, 4.3.9, and 4.3.10 should be described in some degree of detail. Referring to detailed specifications and instructions in other documents is acceptable, provided those descriptions are appended to the QAPP. IT		370. Reject. See comment resolution 242.	
	371. Page 10, Sec. 4.3.1, 4.3.2, 4.3.3, and 4.3.5: These		371. Accept. Subcontractor	

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	sections contain language indicating performance criteria shall be established by a contractor, e.g., "performed in compliance with approved subcontractor procedures...". Performance requirements should be established by the prime in the QAPP and passed down for contractor/subcontractor compliance. Alternatively, if specific contractual or technical reasons require the contractor to establish "approved" performance criteria and requirements, then the QAPP shall establish protocols for that approval, including appropriate reviews, documentation, and approval. IT		procedures and performance criteria will be controlled in accordance with the QAPP and the WHC Quality Assurance Program Plan for CERCLA RI/FS. The program plan will implement a number of specific procurement control procedures which have been developed in accordance with NQA-1 and contain the specific contractual requirements.	
	372. Page 11, Sec. 4.0: Field documentation needs to be addressed, i.e., types of forms, information to be recorded, and frequency of completion. IT		372. Accept in part. This information is provided in the specific EIIs. The procedures that include these requirements will be named. See also response 242.	
	373. Page 11, Sec. 5.1: This sections seems to say "Trust me. I have lots of procedures." Specifics need to be available to inspire the trust that is requested. IT		373. Reject. See comment resolution 242.	
	374. Page 11, Sec. 5.1: Specific chain of custody procedures should be defined in QAPP and should include conditions that define sample custody, procedures for change of custody, variables of documentation (i.e., personnel, company, time and date) during change, sample		374. Reject. Specific chain of custody procedures are defined in the WHC procedure cited in this section. See also response 242.	

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	numbering, preservation and analysis. IT			
	375. Page 11, Sec. 5.0: Examples of chain of custody form and sample label should be included. IT		375. Reject. See response 374.	
	376. Page 12, Sec. 5.2: "Approved procedures" for radiation screening should be defined. IT		376. Accept in part. See comment resolutions 242 and 265. The text will be modified to refer to the Radiological Protection and Operational Health Physics manuals in use at the Hanford Site.	
	377. Page 12, Sec. 5.2: The sealing of core barrels that contain high (>5 millirem/hr) radioactive contents needs to be described as to materials and procedure. IT		377. Reject. Procedures are described in EII 5.2 Soil and Sediment Sampling. See also response 242.	
	378. Page 12, Sec. 6.0: References in text do not match those in Appendix B. IT		378. Accept. Corrected.	
	379. Page 12, Sec. 6.0: Specific calibration		379. Reject. Calibration	

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	requirements are discussed for organic and inorganic analyses only. Requirements should also be specified for the radiochemical analyses. IT		requirements for radiochemical analysis are covered in the first paragraph of Section 6.0 on page 12.	
	380. Page 14, Sect. 8.0, Data Reduction, Validation, and Reporting: It is stated here that the laboratory will perform all data validation. Normally, the laboratory does not have information on the identity of field QA samples and their relationship to regular samples. Without this information, total data validation is not possible. This should be reconciled as soon as the WHC-EP-0215 (containing data validation requirements) is available. HAZWRAP		380. Accept. Section 8.0 will be expanded to invoke specific EPA requirements for laboratory data evaluation.	
	381. Tables 4-1 and 7-1: TOC, nitrate and total phosphorous are listed as analytes in Table 4-1 but not in Table 7-1. Conversely, phosphate is listed in Table 7-1 but not in Table 4-1. IT		381. Accept. Table 4-1 will be deleted; see response to comment (368) above.	
	382. Table 7-1: The valence state of chromium should be indicated. IT		382. Accept. "Total" has been added to chromium.	
	383. Table 7-1: Footnote 5 for Detection Limit (Water)		383. Accept. Corrected.	

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	for Inorganic analysis should be 4. IT			
	384. Table 7-1: Footnote 3 should be 5 for method 8270. IT		384. Accept. Corrected.	
	385. Table 7-1: The description of this Table in the Table of Contents should state "Limit" not "Unit" and page numbers are not given. IT		385. Accept. Corrected.	
	386. Table 7-1: No method for either Fluoride or Phosphate analyses is given. IT		386. Accept. Table 7-1 has been corrected to indicate method ASTM-D4327 is used for fluoride and phosphate.	
	387. Table 7-1: The detection limit for mercury in water should be 0.0002 mg/L not 0.002 mg/L. IT		387. Accept. Corrected.	
	388. Page 14, Sec. 7.0: PARCC acronym requires definition. IT		388. Reject. PARCC is defined in this section.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	389. Page 14, Sec. 7.0: Procedures for approval of contractor analytical laboratory should be established. IT		389. Accept. Procedures for the approval of contractor analytical laboratories have been established under WHC's current procurement control requirements as delineated in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities. The text will be modified to refer to these procedures.	
	390. Page 14, Sec. 8.0: Procedures and calculations should be described. IT		390. Accept. An appendix will be added that will provide recommended statistical methods and formulae for assessing precision, accuracy, and completeness. Specific data reduction and validation procedures and calculations will be provided by the analytical laboratory(s) selected to perform this work in accordance with their laboratory manuals as outlined in the procurement documents.	
	391. Page 14, Sec 8.0: Reporting scheme and paths should be described and key individuals noted, or reference made to relevant organizational chart in Sec. 2.0.		391. Accept. References to the Project Management Plan and the Data Management Plan have been	

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	IT		included in this section for reporting requirements.	
	392. Page 14, Sec. 8.0: Does not discuss data reduction procedures as required by QAMA-005/80. Methods for treating unacceptable data/outliers and data management procedures should also be presented or referenced in this section (See QAMS-005/80 and OSWER 9355.3-01). IT		392. Accept. See response to comment (390) above; text of Section 8.0 will be modified to require identification of unacceptable data and data outliers in validation reports, subject to review and resolution by the Technical Lead.	
	393. Page 14, Sec. 9.0: This should specify the minimum requirements to be met by subcontractor internal QC checks (e.g., WHC-EP-0215 requirements will be passed down to any subcontractors). IT		393. Accepted in part. Minimum requirements for subcontractor internal QC checks have been addressed in Section 9.0.	
	394. Page 14, Sec. 10.0: Requirements of the audit process should be described; if they are referenced, then they should be appended to the QAPP. IT		394. Accepted in part. Requirements of the audit process are contained in WHC-CM-4-2, "Quality Assurance" and will be described in this paragraph. However, reference to this requirement will be handled in accordance with comment resolution 242.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	395. Page 14, Sec. 10.0: Qualified and certified auditors need to be defined. IT		395. Reject. Quality auditor qualification and certification requirements based on WHC QA manual requirements are invoked for this activity by the WHC Quality Assurance Program Plan for CERCLA RI/FS activities and the procedures referenced therein.	
	396. Page 14, Sec. 14.0: Implementation of the performance and system audits should be addressed separately. IT		396. Reject. No change is recommended; implementing procedures to be used for the actual performance of all types of audits are referenced through the EQAPP. Specific numerical references, however, will be removed from the text in compliance with DOE Order 1430.2A. See comment resolution 242.	
	397. Page 22, Table 7-1: EPA SW-846, 1982, second edition is outdated and is superseded by the third edition. IT		397. Acknowledged. Table 7-1 does not reference the second edition. However, we have added a reference to the third edition.	
	398. Page 23, Sec. 10.0: The differences between a "nonconformance" and a "deviation" as discussed should be		398. Accept. "Deviation" and "Nonconformance" will be defined	

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	defined, and the terms included in Appendix A. IT		and added to the Glossary.	
	399. Page 23, Sec. 10.0: Periodic surveillance needs to be defined as to frequency or conditions that warrant its implementation. IT		399. Accept. Period surveillance is defined in WHC-CM2-4, "Quality Assurance" and will be generically discussed in this paragraph.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	400. Page 23, Sec. 10.0: A schedule of maintenance for equipment used should be provided. IT		400. Accept in part. Maintenance schedules, maintenance responsibilities, and critical spare parts are established in accordance with WHC Standard Operating Procedures for the organization conducting the specific task and responsible for the equipment utilized. A more detailed discussion describing how these required elements are established and controlled will be included in the text.	
	401. Page 23, Sec. 11.0: Maintenance responsibility should be noted. IT		401. Accept. See comment resolution 400.	
	402. Page 23, Sec. 11.0: A list of critical spare parts or required elements should be noted. IT		402. Accept. See comment resolution 400.	
	403. Page 23, Sec 12.0: It is not clear how the limitations and restrictions on data use will be implemented. IT		403. Reject. Comment is unclear.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	404. Page 24, Sec. 13.0: How will corrective actions that may be required as a result of activities other than audit/surveillance (e.g., routine review of data reports) be handled? IT		404. Accept. Corrections required as a result of routine review activities shall be referred to the Technical Lead for review and resolution.Section 13.0 will be expanded and clarified.	
	405. Page 24, Sec. 12.0: Specific procedures for statistically analyzing precision and accuracy should be noted. Equations should be included that define assumptions, variables, limits and uses.If plots are central to the process, then explanations on their construction should be provided.Limits of acceptability should be established that include a means for dealing with values outside of limits.These activities may be a part of validation efforts. IT		405. Accept. See response to comment (390) above.	
	406. Page 24, Sec. 12.0: Specific procedures for statistically analyzing precision and accuracy should be noted. Equations should be included that define assumptions, variables, limits and uses.If plots are central to the process, then explanations on their construction should be provided.Limits of acceptability should be established that include a means for dealing with values outside of limits.These activities may be a part of validation efforts. IT		406. Accept. See response to comment (390) above.	

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	407. Page 24, Sec 13.0: Details of the corrective action should be provided, or if referenced, then appended to the QAPP. The system for corrective action should be included, in addition to the action that identified the situation, the document that established the requirement that has been violated. In addition, the specific corrective action should be described and include a schedule of implementation; personnel responsible for its execution, personnel responsible for approval and a report on impacts to the project. IT		407. Accept. See response to comment (404) above and (331) above.	
	408. Page 24, Sec. 14.0: Section 4.4 referred to, does not exist in QAPP. IT		408. Accept. Section 4.4 should be Section 4.3.10; text will be revised.	
	409. Page 24, Sec. 14.0: "Instruction Change Authorization" has not been defined. IT		409. Reject. See Section 4.3.10.	
	410. Page 24, Sec. 14.0: In addition to reports summarizing audits and similar activities, it should provide an assessment of the system for measurement of accuracy, precision, and completeness, and significant QA problems and recommendations to avoid future occurrences. The latter should address the entire Phase I operations and include analytical field and office activities.		410. Accept. Such an assessment is an integral part of the Data Evaluation and Phase 1 Remedial Investigation Report (See Task 14 under section 1.0).Section 14.0 and the Task 14 description under the Work Plan will be clarified. See comment resolution 331.	

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	IT			
	411. General Comment: Records Management--A system should be presented on handling and storing records. Organization and personnel, custody, archiving, and storage conditions, and access control should be addressed. IT		411. Reject. See Data Management Plan.	
	412. General Comment: Procurement Control--The procurement of goods and services should be addressed. Methods of vendor and contractor qualification, competitive bid selection, quality assessment as to conformance to requirements or meeting minimum standards; review and control of supplies and documents; procedures and requirements for receiving and inspection; and procedures of nonconforming services and products should be described. IT		412. Reject. The procurement of goods and services is well established for the Hanford Site and WHC in accordance with the controls promulgated under NQA-1 requirements. These same controls will be invoke for CERCLA RI/FS procurement activities as specified in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities. See comment resolution 331.	
	413. General Comment: Design and Analysis Verification--A procedure for determining verification of designs and calculations should be described.Drawings, logs, figures, tables, and arithmetic should be considered. Computer programs also require validation criteria. IT		413. Accepted in part. Design and analysis verification procedures are currently specified for WHC engineering activities by WHC manuals WHC-CM-4-2 (Quality Assurance) and WHC-CM-6-1 (Standard Engineering Practices) and will be invoked for CERCLA RI/FS Activities	

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			by the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities. A discussion of these procedures will be included in the text. See comment resolution 331.	
	Volume 2 Health and Safety Plan 414. General: An example of the PJSP should be included as an appendix to this HASP. The PJSP is critical to the implementation of an effective safety program under this plan and is essential for complete understanding of this HASP. IT		414. Accept in part. The WHC procedure EII 2.1 has been referred to for an example of the PJSP. We agree, the PJSP is critical to implementation of an effective safety program.	
	415. General: A written description and map indicating the routes to emergency medical care must be included. This information allows for timely treatment of injured personnel.In addition, two hospitals should be specified to assure treatment under "worst-case" scenarios. IT		415. Accept. Maps and descriptions of the Hanford Site Emergency Medical Services and evacuation routes to the nearest hospitals will be included.	
	416. Sec. 1.0: Consideration should be given to a "Press Release" on this work, including its purpose and scope. RL		416. Reject. The Health and Safety Plan is not the appropriate location to discuss press releases. Press releases will be covered in the Community Relations Plan.	

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	417. Page 1, Sec. 1.1, P. 2, add, "4. Discuss and have employees sign their understanding of procedures and Job Safety Analysis (JSA) RL		417. Accept. Item 4 has been added as suggested.	
	418. Page 1, Sec. 1.1, P. 3, add after mandatory "weekly". RL		418. Accept. "Weekly" has been added.	
	419. Page 1, Sec. 1.1, P. 4, add a sentence on individuals rights and responsibilities for "Stop Work Authority in case of imminent hazards." RL		419. Reject. This is covered in the last sentence of Section 1.2.	
	420. Page 2, Sec. 1.2, P. 2, add a bullet on Confined Spaces. RL		420. Accept. A bullet has been added to indicate the field team leader has responsibility for approving all confined space entry.In addition a bullet has been added to Par. 3 to indicate the site safety officer has responsibility for oversight of all confined space entry.	

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	421. Page 2, Sec. 1.2, P. 2, Bullet 4, add, "establish a daily work permit to be reviewed and approved by Management/Safety on the day before work is to be done. RL		421. Accept. Bullet added.	
	422. Page 2, Sec. 1.2, P. 3, Bullet 1, add that when welding, painting or when inert gas cylinders are below grade and at 4 feet or lower, the area will be properly monitored as a confined space. RL		422. Accept. Bullet 1 has been modified as suggested.	
	423. Page 2, Sec 1.2, Bullet 6: Field Team Leader responsibilities list does not specify the reporting or command relationship for the FTL. More specific information is needed. IT		423. Reject. This information is provided in the Project Management Plan.	
	424. Page 3, Sec. 1.2, P. 3, Bullets 4 and 5, delete "if or as necessary" RL		424. Accept in part. "If necessary" is appropriate to include in Bullet 4."As necessary" has been deleted from Bullet 5.	
	425. Page 3, Sec. 1.2, P. 4, Comment: Responsibility and authority for workers and projects health and safety is that of 1st line management. RL		425. Acknowledged. We recognize the responsibility of 1st line management in regards to health and safety of employees. However,	

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			this health and safety plan is written for employees and it is important in the context of this paragraph to point out the employees responsibilities.	
	426. Page 3, Sec. 1.3, P. 2: A discussion is needed that covers employees medical clearances, restrictions, occupational radiation exposures, etc.. RL		426. Accept. The text will be modified to more completely discuss the medical clearance requirements imposed upon employees.	
	427. Page 4, Sec. 1.4, P. 2: Inexperienced employees are required to be accompanied by an experienced employee for "three complete field procedures."The period of time associated with these repetitions should be specified. IT		427. Accept. A one year period will be allowed for the three repetitions.	
	428. Page 5, Sec. 2.1, P. 1, bullet 1: add, "safety eye wash and shovel". RL		428. Accept. Items have been added to Bullet 1.	
	429. Page 6, Sec. 2.1, P. 1, bullet 8: delete "and, if necessary" RL		429. Accept. Bullet 8 has been modified as suggested.	

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	430. Page 6, Sec. 2.1, P. 1, bullet 8: Hand/face contact prohibitions must include the eyes and nose as well as the mouth to provide sufficient protection from contaminant absorption/ingestion. IT		430. Accept. Bullet 8 has been modified to refer to "Hand/face contact".	
	431. Page 6, Sec. 2.1, P. 1, bullet 12: Authority for appropriate level of protection must be specified (Site Safety Officer, HASP, RPT, etc.). IT		431. Reject. This information is covered in Section 6.0 and is not appropriate to include in this Bullet.	
	432. Page 6, Sec. 2.1, P. 1, bullet 13: define levels, i.e. B and C. RL		432. Reject. See response 431.	
	433. Page 6, Sec. 2.1, P. 1, bullet 16: Serious consideration should be given to use of a windsock at each site location. Then add, "as indicated by the windsock." RL		433. Accept. Bullet has been modified by adding, "as indicated by the windsock".	
	434. Page 6, Sec. 2.1, P. 1, bullet 18: Section of the HASP specifying confined space (trench) entry and operation procedures should be referenced. IT		434. Accept. Section referring to confined space entry has been referenced.	

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	435. Page 6, Sec. 2.1, P. 1, bullet 20: add "A 2-way radio will be provided and operating at each site location.The channel will provide communication to the fire department for emergency response."Controlled Zone has not been defined. RL,IT		435. Accept. Language suggested has been added to the Bullet. "Controlled" has been changed to "Exclusion" as defined in Section 7.0.	
	436. Page 6, Sec. 2.1, P. 1, bullet 21: needed will be appropriate gloves, eye wash and drench equipment. RL		436. Reject. Bullet 21 does not appear to be an appropriate location for including the items mentioned.	
	437. Page 7, Sec. 2.1, P. 1, bullet 22: not very good on manual lifting, be more specific i.e., add "when greater than 25 pounds and proper techniques will be used." RL		437. Accept. This bullet has been rewritten to state, "The buddy system and proper techniques will be used for all manual lifting of heavy or large, awkward objects".	
	438. Page 7, Sec. 2.1, P. 1, bullet 25: change shout to, "talk in a normal voice" and add after hearing protection in line 8, "i.e., disposable foam ear plugs." RL		438. Reject. Hearing protection is not required if you have to talk in a normal voice to communicate. Disposable foam ear plugs are not recommended.	

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	439. Page 7, Sec. 2.1, P. 1, bullet 26: spelling on radioactive RL		439. Accept. Corrected.	
	440. Page 7, Sec. 2.1, P. 1, bullet 28: add after adequately illuminated, "15 f/c on flat work surfaces." RL		440. Reject. This level of detail is not needed in a health and safety plan.No one will be measuring to see if there is 15 f/c to decide whether to stop work.	
	441. Page 7, Sec. 2.1, P. 1: add bullets 31 and 32. o Work will stop if any changes occur or unexpected events happen o Work will stop if any hazardous materials or radiation monitoring equipment is not on hand and working properly. RL		441. Accept in part. Additional Bullets have been added. However, the first bullet suggested has been modified to read, "Work will stop if any changes occur or unexpected events happen that threaten employee health and safety".	
	442. Page 7, Sec. 2.2: Common practice dictates the use of Confined Space Entry Permits when operations are to take place in any confined space. These permits assure special and appropriate care is exercised when operations must be performed in confined spaces. IT		442. Accept. The use of confined space entry permits will be described.	

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	443. Page 7-8, Sec. 2.2: The following items have not been discussed and need to be: o Submittal of nose wipes, whole body counting and urine samples for radiological analysis o Radiation monitoring equipment, oxygen meter, organic vapor meters and explosimeter need to be present. o P. 3: add ANS:Z117.1, "Safety requirements for working in tanks and other confined spaces and use of film . . ." o P. 5: add in a paragraph dealing with vehicles, operating at or near the site stating that they will be positioned so that Carbon Monoxide or other auto exhaust gases will not accumulate in the pit or trench.Each vehicle will be properly equipped for off road use, i.e., exhaust protection, shovel, fire extinquishers, etc.. RL		443. Reject. Bullet 1 is not appropriate for this section. Bullet 2 is adequately addressed in paragraph 5 of this section.Third bullet is unclear.First sentence of bullet 4 is not needed as carbon monoxide is not heavier than air. Second sentence of bullet 4 is not appropriate to include in this section of the Health and Safety Plan.	
	444. Page 8, Sec. 3.1, P. 1: reference is needed to Table 3.2, List of Chemicals. Also in Table 3.2 is it not reasonable that other chemicals such as Trichlorethylene might be present? RL		444. Reject. This Table was prepared for the work plan based on information published in the PA/SI Report. There is no information to indicate trichloroethylene was disposed in the operable unit.	
	445. Page 9, Figure 3-1: Needs legend. Also high light the 200-BP-1 Operable Unit so it can be distinguished from the others. IT		445. Accept. Figure 3-1 has been modified as suggested.	
	446. Page 18, Sec. 4.3, P. 1: A distance from the radiation source be specified?		446. Reject. The statement in the text is referring to generic ALARA	

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	RL		techniques for reducing a workers radiation exposure. These techniques include minimizing time in the radiation field, maximizing the workers distance from the source of radiation, and to the extent practical utilizing shielding.Therefore, a discrete distance from any given source cannot be specified.	
	447. Page 18, Sec. 4.3, P. 5: Monitoring for organic vapors is specified using HNU-PI-101 photoionization detectors is not appropriate to the detection of free cyanide specifically noted earlier in the paragraph. In addition, specific detector tubes are not effective in an environment with inadeluately characterized contaminants.Multiple toxic gas monitors (HCN, H_2S, etc.) or generalized detector tubes may be more appropriate to the detection of unknown reaction products. IT		447. Reject. We never stated that a PID would be used to detect free cyanide.A PID for general organic toxic vapor detection capability combined with specific (i.e. HCN) detector tubes is appropriate for this site based on the types of contaminants known to have been disposed.	
	448. Page 19, Sec. 5.0, P. 1: Two comments. This paragraph implies the RPT will be the only safety person on site full time, therefore, they will need increased knowledge of chemicals and monitoring, if not, then the safety officer and or health and safety personnel must be knowledgeable of chemicals and be there full time. RL		448. Acknowledged. This paragraph has been rewritten to clarify that appropriate safety personnel will be on site at all times.	

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	449. Page 21, Sec. 5.4: An increased discussion is needed on the target organs, levels and health effects for the various radioactive isotopes. RL		449. Reject. This type of information is more relevant for a medical surveillance program than for an employee health and safety plan.	
	450. Page 22, Sec. 6.1, item 5: The use of NBR gloves precludes the use of procedures stipulated in the Geologic Logging EII. These gloves greatly restrict manual inspections of consolidated or unconsolidated materials.If samples appear to be uncontaminated, then the use of two layers of latex gloves should be used if relative density field determinations are to be conducted. IT		450. Reject. The soils will be classified in accordance with visual procedures of ASTM D2488. Since most of the soils are likely to be course grained, this is not anticipated to be a major problem. Relative plasticity of any fines will be estimated.This can be done even with gloves.	
	451. Page 22, Sec. 6.1, D-2 Protection, item 1: SWPs are not defined as well as "rubbers or canvas "show" covers. Additionally, it appears that an individual will be wearing surgical gloves (item 1), NBR gloves (item 7) and inner gloves (item 8).These individuals will not be capable of recording information on paper while wearing three pairs of gloves.Generally, level D consists of latex and cotton for drillers/helpers/equipment operators and double latex for geologists/hydrogeologists. IT		451. Accept in part. This section has been modified to more completing describe the required clothing. However, based on years of experience at hanford with the use of protective clothing, the workers still will be able to record information on field logs.The text will be changed to indicate the use of voice actuated tape recorders may be used as an optional method for recording field data. SWP's have been defined.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
			Typo "show" has been corrected to "shoe." Surgical gloves have been deleted. The D-2 protection now indicates one pair of inner gloves and NBR gloves are included.	
	452. .Page 22, Sec. 6.1, D-2 Protection, item 5: Eye protection is required when splash hazard exists. Eye protection is required at all times for level D-3 protection; this item should require at least the protection called out in the lowered protection level. If the item is intended to require goggles when a splash hazard exists and safety glasses at all other times, the item should be rewritten to say so. IT		452. Accept. Has been rewritten to indicate safety glasses are required at all times and safety goggles are required when a splash hazard exists.	
	453. Page 23, Sec. 6.1: In the listing of respiratory equipment for level B, for air line respiratory equipment, Grade E Breathing Air by cylinders or compressors will be provided. In addition, if on air equipment for IDLH or confined space then SCBA's are needed with back ups. RL		453. Reject. Not necessary. This section merely specifies what constitutes Level B.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	454. Page 23, Sec. 6.2: Heat stress sections needs to discuss the reentry or return to work time and approval if a worker is overcome. RL		454. Accept. This information has been included.	
	455. Page 24, Sec. 7.0, P. 2: A discussion is needed and/or other means for workers to readily determine wind direction for command post, staging and decontamination areas. RL		455. Accept. Language has been added to indicate a wind sock or other wind direction indicator will be used to determine wind direction.	
	456. Page 24, Sec. 8.0, P. 1: Add a section or wording on area shall be upwind. RL		456. Accept. We have added wording to indicate the decontamination area shall be upwind of the site.	
	457. Page 25, Sec. 8.2, P. 1: PCBs are discussed here as a possible contaminant, but they are not on the Table 3.2 list. RL		457. Acknowledged. PCBs are only used as an example in this paragraph.However, they are not a contaminant of concern and thus are not included on Table 3.2.	
	458. Page 25, Sec. 8.2, P. 3: Extensively contaminated equipment should be wrapped or bagged securely prior to		458. Accept. Language has been added to indicate equipment will be	

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	transport to Building 2705-T to minimize the spread of contaminants beyond the Exclusion Zone. IT		wrapped or bagged prior to transport to Building 2705-T.	
	459. Page 26, Sec. 8.4: A discussion is needed on the use of provided air cylinders and compressors for breathing air, SCBAs and of air purifying respirators. RL		459. Reject. The use of respiratory equipment is presented to all workers in the required training specified in EII 1.7, "Indoctrination, Training, and Qualification". It is not necessary to reiterate that training in the health and safety plan.	
	460. Page 27, Sec. 9.0, P. 1: Add a statement after safe area, "upwind as indicated by the wind direction indicator." RL		460. Accept. Statement suggested has been added.	
	461. Page 28, Sec 9.3, P. 2: Add after ...Smoking, " lighters or matches.. are strictly prohibited...." RL		461. Accept. Sentence has been modified as suggested.	
	462. Page 29, Sec 9.3, item 4: Section 9.1 specifies notification of Hanford Patrol on radio channel 2, while this reference requires notification by relay through station 1, this notification procedure must be clarified		462. Accept. The notification procedure has been corrected.	

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	and consistent. IT			
	463. Page 29, Sec. 9.4: This section must also discuss the loss of chemical and radiological monitoring equipment. If this happens all work stops and personnel are removed from the area. RL		463. Reject. Section 9.4 covers personnel protection equipment. Chemical and radiological monitoring equipment is included in Section 9.5.	
	464. Page 29, Sec. 9.4: "Protection Factor" has not been defined; "degree of protection" or similar phrase should be substituted. IT		464. Accept. Sentence has been modified as suggested.	
	465. Sec. 9: There is no discussion of Sanitation needs; i.e., restrooms RL		465. Acknowledged. Not needed in a Health and Safety Plan.	
	466. Page 29, Sec. 9.7, bullet 1: The typical period of flushing for the removal of contaminants from the eye(s) is at least 15 minutes. The statement "using large amounts of water " is not sufficient. IT		466. Accept. Statement has been changed as suggested.	
	467. Page 30, Sec. 9.8: The order in which the emergency		467. Accept. The order for	

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	services and personnel are to be called must be specified to assure effective emergency communications. IT		contact of emergency services has been specified.	
	468. Page 30, Sec. 9.8: There is a special form to report environmental releases, see attached. RL		468. Reject. Form was not attached to comments.	
	Volume 2 Community Relations Plan 469. Is the Hanford-wide community relations plan acceptable to regulatory personnel? The guidance supports a site (which would imply Operable unit for Hanford) level. How will schedules of specific events on community relation efforts fit into the overall RI/FS activity for 200-BP-1? HAZWRAP		469. Reject. The Community Relations Plan(CRP) will be applicable to all Hanford Site Operable Unit remedial investigation and feasibility studies.The draft CRP has been reviewed by the regulators and will be approved by the regulators when final. The CRP will provide a generic schedule for when community involvement is required during the RI/FS.This generic schedule will then be tailored to the specific operable unit being considered and a schedule for community involvement will be constructed by the unit managers.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	Volume 2 Data Management Plan 470. The second sheet of Table 2-1 is missing; total review of this table could not be made. **HAZWRAP**		470. Accept. The second sheet of Table 2-1 has been included.	
	471. For completeness, the scheduled implementation of the computer-based Hanford Environmental Information System (HEIS) discussed in this section should be identified on the work plan schedule, Figure 6-1. The DPM could be improved by adding a discussion on the control, access, and overall management of the HEIS, as well as the other hard copy and/or computerized data systems that will be used until the HEIS is implemented. **NUS**		471. Reject. While the completion of the Hanford Environmental Information System will greatly improve the overall data control system for environmental data, its completion is not critical to the conduct of the 200-BP-1 Operable Unit RI/FS. As discussed in the text, an all inclusive data management system for all CERCLA RI/FS activities on the Hanford Site is still a number of years away.Therefore, the data generated during the first few years of this program will be controlled using existing hard copy and computerized data systems as described in the Data Management Plan.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	Volume 2 Project Management Plan 472. Section 2, General: It is difficult to understand how the project will really be managed. For example: Which one person is in charge? If EPA Unit Manager is responsible for all activities, how does he direct the work of WHC?Contractually this seems to be a major problem. The description of the Technical Lead job places this position as "real" project manager. In that much of the data gathering activity supports both the RI and the FS, it is not clear how the RI Coordinator and the FS Coordinator roles will be separated. IT		472. In response to the four questions the following information is provided and is based on the current Tri-Party Agreement Action Plan: 1) It is unclear what is meant by the term "in charge". There are really four people with unique responsibilities that are "in charge of the Project" and the roles of these individuals is spelled out in the Project Management Plan as outlined in the Tri-Party Agreement Action Plan.These four individuals include: oThe Lead Regulatory Agency (EPA) Unit Manager. oThe Supporting Regulatory Agency (Ecology) Unit Manager. oThe DOE Unit Manager. oThe WHC Technical Lead. 2) The EPA Unit Manager will obtain his authority for directing this project by the Tri-Party Agreement Action Plan. In addition, the Action Plan will also describe the method and processes	

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			necessary to implement this control. 3) This statement is true if a "real" project manager is defined as the individual responsible for the actual control of the day-to-day cost, scheduling and technical oversight of the work being performed.However, IT should review the most recent version of the Draft Tri-Party Agreement Action Plan to familiarize themselves with the roles and responsibilities of the Unit Managers. Within their specified roles, these individuals are also "real" project managers. 3) The RI and FS coordinators will work very closely (especially concerning data needs and data gathering activities) and for some projects may in fact be the same individual. However, for complex projects, a single individual would not be able to adequately coordinate all RI and FS activities, reports, etc. which are being simultaneously conducted.	

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	473. Suggest adding to Figure 2-1 (page 3 of Project Management Section) titled "Project Organization" the DOE-RL nomenclature for responsible organizations since the blocks as currently titled do not agree with RL terminology. **RL**		473. Reject. Figure 2.1 uses nomenclature developed in the draft Tri-Party Agreement Action Plan which the regulators will be more familiar with.	
	474. Page 2, second bullet: The wording is not compatible with the work plan terminology. For example, RI/FS Project Plans is used, but should this be RI/FS Work Plan? Also, the titles of the attached plans; should be used. The QA Plan and Field Sampling Plan make up the Sampling and Analysis Plan; therefore, this latter document should be indicated also. **HAZWRAP**		474. Accept. The text has been modified accordingly.	
	475. Page 3: The three staff positions above the technical lead block are not designated. The positions should be qualified, and the responsibilities should be included in the plan. **HAZWRAP**		475. Accept. The text has been modified accordingly.	
	476. The staff functions of QA, QC, Health and Safety, Project Control, and Procurement should be shown below the technical lead block for accuracy, and the responsibilities for these important control functions should be included in the plan.		476. Accepted in Part. Figure 2-1 provides an accurate representation of these functions. However, the text will be modified to describe the roles of these staff	

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	Because this is a project plan, it would seem appropriate to show the project organization in more detail. The responsibilities of the various team functions should be included because it is important to understand the responsibilities down to where the work is being accomplished. **HAZWRAP**		functions.More detailed project structure is provided in the subsequent field team organization charts and Figure 2-2.	
	477. Page 12 appears twice; there is no p. 13. **HAZWRAP**		477. Accept. This problem was isolated to the copy review by HAZWRAP. To the extent possible all future copies will be screened in an attempt to avoid any future problems of this sort.	
	478. Page 15, Sect. 3.4: It is not clear if the administrative records will be QA records. In my view these records should be classified as QA records. **HAZWRAP**		478. Accept. See comment resolution 343.	
	479. Page 17, Sec 3.6, P. 2: Field changes should be approved by the QA Officer. IT		479. Accepted in part. Field changes are accomplished and documented in accordance with EII 1.4. As discussed in the draft Tri-Party Agreement Action Plan, "To ensure efficient and timely completion of tasks, minor field	

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			changes can be made by the person in charge of the particular activity in the field."As discussed in EII 1.4 some field changes may require sign-off by the Quality Assurance Officer, but this is certainly not the case for all field changes.EII 1.4 will be referred to in this section.	
	480. Page 19: The explanation of sound control requirements for cost/schedule control of the project and control of the project through timely project reviews by responsible project elements is excellent. **HAZWRAP**		480. Acknowledged.	
	481. Page 1, Appendix A: The definitions of QA, Quality Assurance Project Plan (QAPP), and Quality Control (QC) are only directed at the control of data quality. Programmatic management activities that extend beyond obtaining data quality must also be controlled within the Department of Energy, Westinghouse-Hanford Corporation (WHC), and subcontractors to ensure project objectives are met. Moreover, as the project progresses to other remedial actions phases such as remedial design and remedial action, more of the programmatic control elements (NQA-1) should be invoked and tailored to the project requirements. **HAZWRAP**		481. Reject. The glossary provided for the QAPP is specific to the use of these terms in the QAPP, not the complete Project Plan.Programmatic control elements required by NQA-1 are described in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities.	

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Item	Comment(s)/Discrepancy(s) - provide technical justification and a detailed recommendation of the action required to resolve the discrepancy/problem	Hold Point	Disposition - provide justification if not accepted	Status
	Appendix D 482. Page D-22: Plutonium-238 is not shown in the header block. IT		482. Accept. Corrected.	
	483. Page D-23: Plutonium-239/240 not shown in header block. IT		483. Accept. Corrected.	
	484. Page D-35: Technetium-99 not shown in header block. IT		484. Accept. Corrected.	
	485. Page D-45: Tritium not shown in header block. IT		485. Accept. Corrected.	
	Appendix E 486. Change all "mg/L" to "ppm" for consistency with "ppb" RL		486. Reject. The information provided in Appendix E is in the form directly provided by PNL from the Hanford Groundwater Data Base.In fact all the information provided in the appendices is directly from some other source of information. To avoid any conversion or rounding errors this existing information has been presented as it was provided.	

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			Future efforts with the HEIS will be geared towards standardizing items such as units for consistency. In addition, all reports generated as part of this RI/FS project will contain data presented with consistent units.	
	Appendix I 487. Page I-1. Appendix I, P. 2: The office of primary responsibility for writing the procedure and the availability date should be included. Open requirements such as this one cannot be effectively controlled without specificity. **HAZWRAP**		487. The development, evaluation and use of computer codes will be controlled in accordance with the quality control requirements delineated in the WHC Quality Assurance Program Plan for CERCLA RI/FS Activities and the Quality Assurance Project Plan (QAPP). The QAPP will be modified to discuss these controls. These activities will be the responsibility of a number of WHC organizations depending on the nature and use of the software. The intent of Appendix I is to provide a starting point for the future development or modification of computer codes which may be useful in the conduct of the proposed RI/FS.	

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	488. Appendix I: There is no mention of software QA requirements in the project QA plan. Because software is critical to quality of the assessments and evaluations of waste management options, it should be indicated in the QA plan as another element to be controlled for ensuring quality. **HAZWRAP**		488. See comment resolution 487 and comment resolution 330.	
	489. Editorial applying to all portions of the work plan and attachments:The numbering system of the document, and all future work plans should be such that ready reference, without duplication can be accomplished. Pages in Section one should be numbered 1-1 through 1-x, Section two 2-1 through 2-x and so forth.In the work plan proper, each section could be preceded by an acronym of the particular plan, i.e., FSP for Field Sampling Plan, SAP for Sampling and Analysis Plan, HSP for Health and Safety Plan.This would make reference considerably easier for both WHC and the reviewers. **IT,RL**		489. Accept. The pagination system for the document will be revised so that each page of the entire project plan (including the attachments) has a unique number.	

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

January 17, 1989 8950149

Ms. Elizabeth A. Bracken, Director
Environmental Restoration Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Ms. Bracken:

REFERENCING OF PROCEDURES IN REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLANS

With the preparation of the 1100-EM-1 Operable Unit Work Plan, an issue relative to the referencing of uncleared documents and procedures was raised. In discussions with reviewers and the U.S. Environmental Protection Agency (EPA), it was determined that in order for the work plans to be approved the specific field operations, sampling, and analysis procedures would need to be referenced. Additionally, a description of how the Remedial Investigation/Feasibility Study (RI/FS) activities would implement NQA-1, as directed by DOE Order 5700.6, would also be required. The following is a summary of the issue and status.

- The DOE Order 1430.2a prohibits the referencing of uncleared documents in cleared documents. Therefore, specific procedures cannot be referenced until they have been cleared. Discussions with the U.S. Department of Energy (DOE) indicate that obtaining a waiver from this order is unlikely.

- Westinghouse Hanford Company (WHC) policy has been not to allow the clearing of procedures due to the company-sensitive material in the procedure manuals and revision control. However, the clearing of the specific field operating, sampling, and analysis procedures appears to be acceptable if they do not reference the other manuals.

- Discussions with DOE and WHC Quality Assurance staff indicate that a section explaining how NQA-1 would be implemented without referencing specific procedures or manuals would be acceptable.

Due to the milestone commitments for the submittal of work plans to EPA and the Washington State Department of Ecology (Ecology) over the next few months, the following are the short-term recommendations.

- For the specific procedures that need to be referenced in the work plans, WHC will provide the title without a specific WHC procedure number. Additionally, WHC will include in the work plan a schedule for the preparation, clearance, and submittal to EPA/Ecology for the specific procedures.

- For implementation of NQA-1, WHC will prepare a section (see attachment 1) for the work plan explaining how the RI/FS activities will incorporate NQA-1. Additionally, all references to WHC manuals will be removed from the work plan. If EPA/Ecology require access to these procedures, they would be required to perform an audit of the particular area of interest. The draft document, which relates the WHC procedures to NQA-1 and EPA quality requirements, would be available for use in an audit.

- These changes can be accomplished without impacting the near-term milestones for submittal of the Work Plans to EPA/Ecology.

In order to meet the long term needs of the environmental activities, WHC recommends the following activities:

- Incorporate the clearance process into the preparation of all documents and procedures that are prepared by the Environmental Division and will be reviewed by EPA, Ecology, and/or the public.

- Place procedures in a separate Environmental Procedures Manual as they are prepared and cleared. The revisions to these procedures would be cleared only when referenced in a new or updated document that will be cleared.

- Assign a task force or subcontractor to begin preparation of a separate but complete set of procedures manuals for the environmantal activites. These manuals would be cleared as they were developed.

If there are any questions or need for additional information, please contact Mr. T. M. Wintczak on 376-0902.

Very truly yours,

G. W. Jackson, Manager
Environmental Restoration
Environmental Division

bw

Attachment

DOE-RL - A. W. Kellogg (w/o attachment)

Attachment 1

Section 5.0

To achieve the basic quality assurance objective above, internal quality assurance documents are used which address the applicability of nuclear quality assurance (ANSI/ASME NQA-1) requirements to RI/FS work. These documents in conjunction with the procedures listed in Table 5-1 and Appendix C, provide the basis for a quality assurance program that satisfies Department of Energy Orders (DOE-RL Order 5700.1A), EPA and internal Westinghouse Hanford Company quality assurance requirements. Specifically the internal proprietary documents address the 18 quality elements of NQA-1 and relate them to EPA quality assurance guidance document requirements. Areas addressed by internal proprietary documents include:

- management policies
- organization charts and charters
- management requirements and procedures
- document clearance and information release
- records management
- quality assurance
- operational health physics
- standard engineering practices
- radioactive solid waste packaging, storage and disposal requirements
- publication style guide
- procurement

ENVIRONMENTAL INVESTIGATION INSTRUCTIONS (EII) IN PROCESS
TO BE CLEARED FOR PUBLIC RELEASE

Number	Procedure title/topic	Anticipated issue date
EII 1.2	Preparation and revision of environmental investigation instructions	Completed
EII 1.4	Deviation from environmental investigation instructions	Completed
EII 1.5	Field logbooks	02/28/89
EII 1.6	Records management	02/28/89
EII 1.7	Indoctrination, training, and qualification	02/28/89
EII 2.1	Preparation of health and safety plans	Completed
EII 2.2	Dosimetry	Completed
EII 3.1	User calibration of measurement and test equipment (health/safety)	02/28/89
EII 5.1	Chain of custody	Completed
EII 5.2	Soil and sediment sampling	Completed
EII 5.3	Biotic sampling	03/31/89
EII 5.4	Field decontamination of drilling equipment	Completed
EII 5.5	Decontamination of equipment for RCRA/CERCLA sampling	Completed
EII 5.6	Gross gamma geophysical logging	02/28/89
EII 5.7	Hanford Geotechnical library control (sample archiving)	03/28/89
EII 6.2	Groundwater monitoring well technical inspection	02/15/89
EII 6.3	Preparation of groundwater monitor well construction specifications	03/31/89
EII 9.1	Geologic logging	Completed
EII 10.1	Aquifer testing	02/28/89
EII 10.2	Groundwater-level monitoring	03/31/89
EII 10.3	Disposal of well construction development waters (purgewater disposal)	02/28/89